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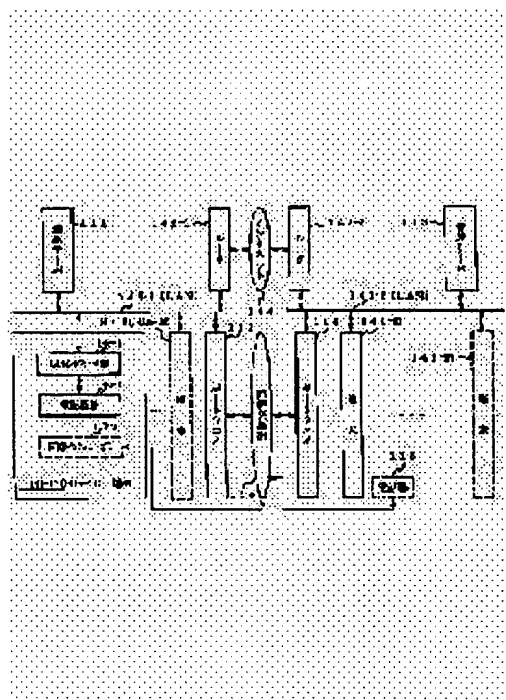
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## (54) CHANNEL INTERFACE DEVICE

### (57)Abstract:

PROBLEM TO BE SOLVED: To maintain high communication quality by employing a channel exchange network in place of a message exchange network when either of a discrimination result by a substitute channel forming means and a discrimination result by a substitute channel forming discrimination means.

SOLUTION: When a terminal 141-21 receive a digital signal from a gateway 114 via a LAN 143-2 after the transmission of a 'substitute channel acknowledgement', the terminal 141-21 generates a digital signal denoting a speech signal to be sent to a terminal 141-11 where 'caller identification information' and 'caller address' previously maintained are succeedingly employed therefor and sends the signal to the gateway 114 via the LAN 143-2. The gateway 114 sequentially sends the digital signal as above to a channel exchange network 115 via a MODEM and a gateway 112 gives the digital signal to the y141-21 via the LAN 143-2 successively.



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**CLAIMS**

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**[Claim(s)]**

[Claim 1] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced about a completed call of the Internet telephone in a message switching network which forms a trunk line A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to perform a call setup which sent to said line switching network by having made into a number to be dialed a subscriber's number registered into said storage means about a terminal which is the arrival-of-the-mail place of said completed call when said event was detected by said event detection means, and was adapted for the line switching network Alternative circuit means forming which distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answers to this call about a completed call in which said event occurred when a result of that distinction is truth, An alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered in process of a call setup performed by said alternative circuit prehension means, A circuit change means to replace with said message switching network and to apply said line switching network as said trunk line when either of a result of distinction performed by said alternative circuit means forming and a result of distinction performed by said alternative circuit formation distinction means is truth

[Claim 2] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out identification information of a sending agency and an arrival-of-the-mail place to the line switching network while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires identification information of dispatch origin given through the line switching network, and an arrival-of-the-mail place, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth When a result of distinction performed by said alternative circuit formation distinction

means between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 3] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out to a trunk line which identification information of a sending agency was formed in the line switching network, and was formed in said Internet in identification information of an arrival-of-the-mail place, respectively while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred Alternative circuit means forming which acquires identification information of dispatch origin given through the line switching network, and identification information of an arrival-of-the-mail place given through a trunk line formed in said message switching network, An alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered in process of a call setup performed by said alternative circuit prehension means, When a result of distinction performed by said alternative circuit means forming is truth When a result of distinction performed by said alternative circuit formation distinction means between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 4] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out identification information of an arrival-of-the-mail place to the line switching network at a trunk line formed in said message switching network in identification information of a sending agency, respectively while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred Alternative circuit means forming which acquires identification information of an arrival-of-the-mail place given through the line switching network, and identification information of dispatch origin given through a trunk line formed in said message switching network, An alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered in process of a call setup performed by said alternative circuit prehension means, When a result of distinction performed by said alternative circuit means forming is

truth When a result of distinction performed by said alternative circuit formation distinction means between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 5] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out identification information of a sending agency and an arrival-of-the-mail place to a trunk line formed in said message switching network while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires identification information of dispatch origin given through a message switching network which is a trunk line, and an arrival-of-the-mail place, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth When a result of distinction performed by said alternative circuit formation distinction means between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 6] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out identification information of an arrival-of-the-mail place to the line switching network while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires identification information of an arrival-of-the-mail place given through the line switching network, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth Between arrival-of-the-mail places shown by identification information acquired by this alternative circuit means forming dispatch origin of a completed call from which that result was obtained, and when a result of distinction performed by said alternative circuit formation distinction means is truth A circuit change means to specify a circuit of said

line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 7] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out identification information of an arrival-of-the-mail place to a trunk line formed in said message switching network while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires identification information of an arrival-of-the-mail place given through a trunk line formed in said message switching network, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth Between arrival-of-the-mail places shown by identification information acquired by this alternative circuit means forming dispatch origin of a completed call from which that result was obtained, and when a result of distinction performed by said alternative circuit formation distinction means is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 8] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out identification information of a sending agency to the line switching network while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires identification information of dispatch origin given through the line switching network, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth Between arrival-of-the-mail places of a completed call from which the result was obtained dispatch origin shown by identification information acquired by the alternative circuit means forming, and when a result of distinction performed by said alternative circuit formation distinction means is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network,

and to apply as said trunk line

[Claim 9] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of said completed call was registered An alternative circuit prehension means to send out identification information of a sending agency to a trunk line formed in said message switching network while setting up a subscriber's number registered into said storage means to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires identification information of dispatch origin given through a trunk line formed in said message switching network, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth Between arrival-of-the-mail places of a completed call from which this result was obtained dispatch origin shown by identification information acquired by that alternative circuit means forming, and when a result of distinction performed by said alternative circuit formation distinction means is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 10] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of said completed call and an arrival-of-the-mail place was registered An alternative circuit prehension means to send out identification information of this arrival-of-the-mail place to that line switching network while setting up a subscriber's number registered into said storage means to a terminal with an arrival-of-the-mail place about a completed call in which that event occurred, respectively the sending agency as an addresser number and a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by addresser number given through the line switching network, alternative circuit means forming which acquires identification information of an arrival-of-the-mail place, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth Dispatch origin registered into said storage means corresponding to a subscriber's number equal to an addresser number acquired by this alternative circuit means forming, When a result of distinction performed by said alternative circuit formation distinction means between arrival-of-the-mail places shown by identification information acquired by the alternative circuit means forming is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line



[Claim 11] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of said completed call and an arrival-of-the-mail place was registered An alternative circuit prehension means to send out identification information of the arrival-of-the-mail place to a trunk line formed in said message switching network while setting up a subscriber's number registered into said storage means to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively as an addresser number and a number to be dialed, and sending to said line switching network and performing a call setup, when said event is detected by said event detection means When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires an addresser number given through the line switching network, and identification information of an arrival-of-the-mail place given through a trunk line formed in said message switching network, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth Dispatch origin registered into said storage means corresponding to a subscriber's number equal to an addresser number acquired by this alternative circuit means forming, When a result of distinction performed by said alternative circuit formation distinction means between arrival-of-the-mail places shown by identification information acquired by the alternative circuit means forming is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line

[Claim 12] A circuit interface device characterized by providing the following. An event detection means to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line about each of a completed call of the Internet telephone which occurs in parallel A storage means by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of said completed call and an arrival-of-the-mail place was registered An alternative circuit prehension means to set up a subscriber's number registered into said storage means to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively when said event was detected by said event detection means as an addresser number and a number to be dialed, and to send to said line switching network, and to perform a call setup When a result of that distinction is truth, while it distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answering to this call about a completed call in which said event occurred In process of a call setup performed by alternative circuit means forming which acquires an addresser number given through the line switching network, and said alternative circuit prehension means When a result of distinction performed by alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered, and said alternative circuit means forming is truth Dispatch origin registered into said storage means corresponding to a subscriber's number equal to an addresser number acquired by the alternative circuit means forming, When a result of distinction performed by said alternative circuit formation distinction means between arrival-of-the-mail places of a completed call from which the result was obtained is truth A circuit change means to specify a circuit of said line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with said message switching network, and to apply as said trunk line



[Claim 13] A circuit interface device characterized by providing the following. An event detection means to detect an event from which an originating call of the Internet telephone turns into an incompleting call. A storage means by which a subscriber's number of a line switching network assigned beforehand was registered about each terminal which can serve as an arrival-of-the-mail place of an originating call of said Internet telephone. An alternative circuit prehension means to perform a call setup which sent to said line switching network by having made into a number to be dialed a subscriber's number registered into said storage means about a terminal which should serve as an arrival-of-the-mail place of said originating call when said event was detected by said event detection means, and was adapted for the line switching network. Alternative circuit means forming which distinguishes whether a call receives a message from said line switching network in a subscriber's number registered into said storage means, and answers to this call when a result of that distinction is truth. An alternative circuit formation distinction means which distinguishes whether an arrival-of-the-mail place which counters through said line switching network answered in process of a call setup performed by said alternative circuit prehension means. When a result of distinction performed by said alternative circuit formation distinction means is truth. When a result of distinction performed by re-dispatch means to send said line switching network again as a trunk line replaced with said message switching network, and said alternative circuit means forming is truth. A circuit change means to apply said line switching network to a call setup of an incoming call of said Internet telephone as a trunk line replaced with said message switching network.

[Claim 14] A circuit interface device according to claim 13 characterized by providing the following. A sending agency attribute storage means by which an attribute which it has as the dispatch origin was beforehand registered about each terminal which can become dispatch origin of an originating call of the Internet telephone. It has a sending agency attribute distinction means which distinguishes whether a specific attribute is included in an attribute registered into said sending agency attribute storage means corresponding to dispatch origin of the originating call when an originating call of said Internet telephone occurs. When a result of distinction performed by said sending agency attribute distinction means is truth, an alternative circuit prehension means. A means to perform a call setup which sent to said line switching network by having made into a number to be dialed a subscriber's number registered into said storage means about a terminal which should serve as an arrival-of-the-mail place of said originating call, and was adapted for the line switching network.

[Claim 15] A circuit interface device according to claim 13 characterized by providing the following. An arrival-of-the-mail place attribute storage means by which an attribute which it has as the arrival-of-the-mail place was beforehand registered about each terminal which can serve as an arrival-of-the-mail place of an originating call of the Internet telephone. It has an arrival-of-the-mail place attribute distinction means which distinguishes whether a specific attribute is included in an attribute registered into said arrival-of-the-mail place attribute storage means corresponding to an arrival-of-the-mail place of the incoming call when an incoming call of said Internet telephone occurs. A circuit change means is a means to apply said line switching network to a call setup of an incoming call of said Internet telephone as a trunk line replaced with a message switching network when a result of distinction performed by said arrival-of-the-mail place attribute distinction means is truth.

[Claim 16] It is the circuit interface device characterized by an event detection means detecting a congestion condition of a message switching network as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15.

[Claim 17] It is the circuit interface device characterized by an event detection means detecting deterioration of a speech quality as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15.

[Claim 18] In a circuit interface device given in any 1 term of claim 1 thru/or claim 17. A terminal which can serve as an arrival-of-the-mail place of a completed call of the Internet telephone or an originating call is held in a different network from a message switching network and a line switching network. For a storage means. About each terminal which can serve as an arrival-of-the-mail place, combine with a subscriber's number and it is installed near the terminal. An alternative subscriber's number assigned to a

terminal held in a line switching network is registered. And an event detection means About said completed call or said originating call, a network with which a terminal of an arrival-of-the-mail place was held lapses into a congestion condition. It has a means to detect a specific event which shows that a failure occurred in the network. Or an alternative circuit prehension means A circuit interface device characterized by having a means which precedes with dispatch to said line switching network, gives priority to an alternative subscriber's number registered into said storage means, and is made into a number to be dialed when said specific event is detected by said event detection means.

[Claim 19] In a circuit interface device given in any 1 term of claim 1 thru/or claim 18 It has a destination storage means by which binary information which shows whether an incoming call should be transmitted about each terminal which can serve as an arrival-of-the-mail place, and the destination of the incoming call were memorized beforehand. An alternative circuit prehension means A circuit interface device characterized by sending towards the destination memorized by this destination storage means with that binary information when a purport to which a value of binary information memorized by said destination storage means corresponding to an arrival-of-the-mail place of a completed call of the Internet telephone or an originating call should be transmitted is shown.

[Claim 20] A circuit interface device given in any 1 term of claim 1 thru/or claim 19 characterized by providing the following A destination storage means by which binary information which shows whether an incoming call should be transmitted about each terminal which can serve as an arrival-of-the-mail place, and the destination of the incoming call were memorized beforehand A transfer means to transmit that incoming call towards the destination memorized by this destination storage means with that binary information when a purport to which a value of binary information a circuit change means was remembered to be by said destination storage means corresponding to an arrival-of-the-mail place of an incoming call of the Internet telephone in process of a call setup performed with the application of a line switching network as a trunk line should be transmitted is shown

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]**

[0001]

[The technical field to which invention belongs] This invention relates to the circuit interface device which forms in a line switching network the trunk line of the call of the Internet telephone which occurred they to be [ any of an information processor and the terminal information processor held in LAN ].

[0002]

[Description of the Prior Art] The Internet telephone cheaply provided with service of a long distance call or an international message is spreading by multimedia-izing many information processors, such as a personal computer, and utilizing the Internet and intranet as a trunk line in recent years.

[0003] Moreover, such an Internet telephone is becoming available at the terminal connected to many LANs according to cheap-izing and spread of a router or bridges which connect between LANs.

Drawing 13 is drawing showing the terminal which uses the Internet telephone through LAN. In drawing, a terminal 141-1 and a router 142-1 are connected to LAN 143-1, and a terminal 141-2 and a router 142-2 are connected to LAN 143-2. These routers 142-1, 142-2 are mutually connected through the Internet 144.

[0004] Moreover, a terminal 141-1 is combined with the LAN interface section 145-1 which takes an interface with LAN 143-1, and the microphone and receiver which are not illustrated, and equips the acoustic signal sent and received through these microphones and receivers with the telephone set section 146-1 which performs predetermined signal processing. In addition, about the configuration of a terminal 141-2, since it is the same as the configuration of a terminal 141-1, the explanation is omitted here.

[0005] In the process in which send to a terminal 141-2 from a terminal 141-1, and the message by the Internet telephone is performed in such a conventional example of a configuration, for example The unique host address with which the terminal 141-1 was assigned beforehand, By sending and receiving an IP packet including a network address including the address of the terminal 141-2 which is an arrival-of-the-mail place by predetermined to a terminal 141-2 and mutual through LAN 143-1, a router 142-1, the Internet 144, a router 142-2, and LAN 143-2 A call setup is performed.

[0006] Moreover, at a terminal 141-1, if it recognizes having changed into the condition that it can talk over the telephone as a result of the call setup mentioned above, respectively, by sound---electrical-and-electric-equipment-changing and compression encoding [ voice / which was uttered by the sender, respectively ], the telephone set section 146-1 will be changed into a sign train, and will be given to a router 142-1 one by one through the LAN interface section 145-1 and LAN 143-1. Furthermore, a router 142-1 changes the sign train into an IP packet, and sends it out towards the Internet 144.

[0007] On the other hand, the router 142-2 which counters through the Internet 144 restores the sign train included in this IP packet, and gives it to a terminal 141-2 through LAN 143-2. Moreover, at a terminal 141-2, the LAN interface section 145-2 and the telephone set section 146-2 are given to a message partner by making voice as stated above into an acoustic signal by performing processing

opposite to the processing which the LAN interface section 145-1 and telephone 146-1 perform in a terminal 141-1 as mentioned above.

[0008] Furthermore, about the voice uttered by the sender (message partner) in the terminal 141-2, processing as stated above is reversibly performed in parallel by the telephone set section 146-2, the LAN interface section 145-2, a router 142-2, 142-1, a router 142-1, the LAN interface section 145-1, and the telephone set section 146-1. Therefore, between a terminal 141-1 and a terminal 141-2, a channel is cheaply formed by applying the Internet 144 as a trunk line compared with the case where the trunk line is formed in a public telephone network.

[0009]

[Problem(s) to be Solved by the Invention] By the way, if the Internet 144 lapses into a congestion condition, in order for the transmission speed of an IP packet mentioned above to fall remarkably in the conventional example mentioned above, for example, there was a case where the sound signal restored at a receiver edge was overlapped on an unnecessary noise, and a speech quality deteriorated, or the effectiveness of a message fell.

[0010] In addition, as technology which eases the deterioration of a speech quality and the decline in the effectiveness of a message which were mentioned above, application of the technology which carries out compression coding of the voice with high compressibility is possible. However, deterioration of a speech quality was not canceled in the condition that much traffic concentrates on a specific node insufficiently [ the transmission capacity of the backbone circuit which a provider holds ] as for such technology.

[0011] This invention is characterized by offering the circuit interface device to which a speech quality is secured highly, even if the transmission efficiency of the Internet is in the condition which fell remarkably.

[0012]

[Means for Solving the Problem] Drawing 1 is claims 1-12 and the principle block diagram of invention given in 16-20.

[0013] An event detection means 11 by which invention according to claim 1 detects hindrance of a message, and a certain event which is and causes deterioration of a speech quality about a completed call of the Internet telephone among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 12 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 11 An alternative circuit prehension means 13 to perform a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 12 about a terminal which is the arrival-of-the-mail place of a completed call, and was adapted for the line switching network, The alternative circuit means forming 14 which distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 12, and answers to this call about a completed call in which an event occurred when a result of that distinction is truth, The alternative circuit formation distinction means 15 which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by the alternative circuit prehension means 13, When either of a result of distinction performed by the alternative circuit means forming 14 and a result of distinction performed by the alternative circuit formation distinction means 15 is truth, it is characterized by having a circuit change means 16 to replace with a message switching network and to apply a line switching network as a trunk line.

[0014] Invention according to claim 2 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-

of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup An alternative circuit prehension means 23 to send out identification information of a sending agency and an arrival-of-the-mail place to the line switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by the alternative circuit means forming 24 which acquires identification information of dispatch origin given through the line switching network, and an arrival-of-the-mail place, and the alternative circuit prehension means 23 When a result of distinction performed by the alternative circuit formation distinction means 25 which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and the alternative circuit means forming 24 is truth When a result of distinction performed by the alternative circuit formation distinction means 25 between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24 is truth It is characterized by having a circuit change means 26 to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0015] Invention according to claim 3 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23a sent out to a trunk line which identification information of a sending agency was formed in the line switching network, and was formed in a message switching network in identification information of an arrival-of-the-mail place, respectively, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred Alternative circuit means forming 24a which acquires identification information of dispatch origin given through the line switching network, and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network, Alternative circuit formation distinction means 25a which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by alternative circuit prehension means 23a, When a result of distinction performed by alternative circuit means forming 24a is truth When a result of distinction performed by alternative circuit formation distinction means 25a between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24a is truth It is characterized by having circuit change means 26a which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0016] Invention according to claim 4 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and

sending to a line switching network and performing a call setup Alternative circuit prehension means 23b which sends out identification information of an arrival-of-the-mail place to the line switching network at a trunk line formed in a message switching network in identification information of a sending agency, respectively, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred Alternative circuit means forming 24b which acquires identification information of an arrival-of-the-mail place given through the line switching network, and identification information of dispatch origin given through a trunk line formed in a message switching network, Alternative circuit formation distinction means 25b which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by the alternative circuit prehension means 41, When a result of distinction performed by alternative circuit means forming 24b is truth When a result of distinction performed by alternative circuit formation distinction means 25b between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24b is truth It is characterized by having circuit change means 26b which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0017] Invention according to claim 5 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23c which sends out identification information of a sending agency and an arrival-of-the-mail place to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by alternative circuit means forming 24c which acquires identification information of dispatch origin given through a message switching network which is a trunk line, and an arrival-of-the-mail place, and alternative circuit prehension means 23c When a result of distinction performed by alternative circuit formation distinction means 25c which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and alternative circuit means forming 24c is truth When a result of distinction performed by alternative circuit formation distinction means 25c between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24c is truth It is characterized by having circuit change means 26c which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0018] Invention according to claim 6 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and

sending to a line switching network and performing a call setup 23d of alternative circuit prehension means to send out identification information of an arrival-of-the-mail place to the line switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24d of alternative circuit means forming which acquires identification information of an arrival-of-the-mail place given through the line switching network, and 23d of alternative circuit prehension means When a result of distinction performed by 25d of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24d of alternative circuit means forming is truth Between arrival-of-the-mail places shown by identification information acquired dispatch origin of a completed call from which that result was obtained by 24d of this alternative circuit means forming, and when a result of distinction performed by 25d of alternative circuit formation distinction means is truth It is characterized by having 26d of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0019] Invention according to claim 7 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23e which sends out identification information of an arrival-of-the-mail place to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by alternative circuit means forming 24e which acquires identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network, and alternative circuit prehension means 23e When a result of distinction performed by alternative circuit formation distinction means 25e which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and alternative circuit means forming 24e is truth Between arrival-of-the-mail places shown by identification information acquired by this alternative circuit means forming 24e dispatch origin of a completed call from which that result was obtained, and when a result of distinction performed by alternative circuit formation distinction means 25e is truth It is characterized by having circuit change means 26e which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0020] Invention according to claim 8 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup 23f of alternative circuit prehension



means to send out identification information of a sending agency to the line switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24f of alternative circuit means forming which acquires identification information of dispatch origin given through the line switching network, and 23f of alternative circuit prehension means When a result of distinction performed by 25f of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24f of alternative circuit means forming is truth Between arrival-of-the-mail places of a completed call from which the result was obtained dispatch origin shown by identification information acquired by 24f of the alternative circuit means forming, and when a result of distinction performed by 25f of alternative circuit formation distinction means is truth It is characterized by having 26f of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0021] Invention according to claim 9 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup 23g of alternative circuit prehension means to send out identification information of a sending agency to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24g of alternative circuit means forming which acquires identification information of dispatch origin given through a trunk line formed in a message switching network, and 23g of alternative circuit prehension means When a result of distinction performed by 25g of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24g of alternative circuit means forming is truth Between arrival-of-the-mail places of a completed call from which this result was obtained dispatch origin shown by identification information acquired by 24g of that alternative circuit means forming, and when a result of distinction performed by 25g of alternative circuit formation distinction means is truth It is characterized by having 26g of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0022] Invention according to claim 10 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, Storage means 22a into which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of a completed call and an arrival-of-the-mail place was registered, and when an event is detected by the event detection means 21 While setting up a subscriber's number registered into storage means 22a to a terminal with an arrival-of-the-mail place about a completed call in which the event occurred, respectively the sending agency as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup 23h of alternative circuit prehension means to send out identification information of this arrival-of-the-mail place to that line switching network, When a result

of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into storage means 22a, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24h of alternative circuit means forming which acquires identification information of an addresser number given through the line switching network, and an arrival-of-the-mail place, and 23h of alternative circuit prehension means When a result of distinction performed by 25h of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24h of alternative circuit means forming is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by 24h of this alternative circuit means forming, When a result of distinction performed by 25h of alternative circuit formation distinction means between arrival-of-the-mail places shown by identification information acquired by 24h of the alternative circuit means forming is truth It is characterized by having 26h of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0023] Invention according to claim 11 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, Storage means 22a into which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of a completed call and an arrival-of-the-mail place was registered, and when an event is detected by the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23i which sends out identification information of the arrival-of-the-mail place to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into storage means 22a, and answering to this call about a completed call in which an event occurred Alternative circuit means forming 24i which acquires an addresser number given through the line switching network, and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network, Alternative circuit formation distinction means 25i which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by alternative circuit prehension means 23i, When a result of distinction performed by alternative circuit means forming 24i is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by this alternative circuit means forming 24i, When a result of distinction performed by alternative circuit formation distinction means 25i between arrival-of-the-mail places shown by identification information acquired by the alternative circuit means forming 24i is truth It is characterized by having circuit change means 26i which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0024] Invention according to claim 12 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, Storage means 22a into which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of a completed call and an arrival-of-the-mail place was registered, and when an event is detected by the event detection means 21 Set up a subscriber's number registered into storage means 22a to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively as an addresser number and a number to be dialed, and it sends to a line switching network.

and about alternative circuit prehension means 23j which performs a call setup, and a completed call in which an event occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into storage means 22a, and answering to this call In process of a call setup performed by alternative circuit means forming 24j which acquires an addresser number given through the line switching network, and alternative circuit prehension means 23j When a result of distinction performed by alternative circuit formation distinction means 25j which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and alternative circuit means forming 24j is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by the alternative circuit means forming 24j, When a result of distinction performed by alternative circuit formation distinction means 25j between arrival-of-the-mail places of a completed call from which the result was obtained is truth It is characterized by having circuit change means 26j which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0025] Drawing 2 is the principle block diagram of invention according to claim 13 to 20. An event detection means 31 by which, as for invention according to claim 13, an originating call of the Internet telephone detects an event used as an incompleting call, When an event is detected by a storage means 32 by which a subscriber's number of a line switching network assigned beforehand was registered about each terminal which can serve as an arrival-of-the-mail place of an originating call of the Internet telephone, and the event detection means 31 An alternative circuit prehension means 33 to perform a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of an originating call, and was adapted for the line switching network, The alternative circuit means forming 34 which distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 32, and answers to this call when a result of that distinction is truth, The alternative circuit formation distinction means 35 which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by the alternative circuit prehension means 33, When a result of distinction performed by the alternative circuit formation distinction means 35 is truth When a result of distinction performed by re-dispatch means 36 to send a line switching network again as a trunk line replaced with a message switching network, and the alternative circuit means forming 34 is truth It is characterized by having a circuit change means 37 to apply a line switching network to a call setup of an incoming call of the Internet telephone as a trunk line replaced with a message switching network.

[0026] Invention according to claim 14 is set to a circuit interface device according to claim 13. When a sending agency attribute storage means 41 by which an attribute which it has as the dispatch origin was beforehand registered about each terminal which can become dispatch origin of an originating call of the Internet telephone, and an originating call of the Internet telephone occur It has the sending agency attribute distinction means 42 which distinguishes whether a specific attribute is included in an attribute registered into the sending agency attribute storage means 41 corresponding to dispatch origin of the originating call. The alternative circuit prehension means 33 When a result of distinction performed by the sending agency attribute distinction means 42 is truth It is characterized by having a means to perform a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of an originating call, and was adapted for the line switching network.

[0027] Invention according to claim 15 is set to a circuit interface device according to claim 13. When an arrival-of-the-mail place attribute storage means 51 by which an attribute which it has as the arrival-of-the-mail place was beforehand registered about each terminal which can serve as an arrival-of-the-mail place of an originating call of the Internet telephone, and an incoming call of the Internet telephone occur It has the arrival-of-the-mail place attribute distinction means 52 which distinguishes whether a specific attribute is included in an attribute registered into the arrival-of-the-mail place attribute storage

means 51 corresponding to an arrival-of-the-mail place of the incoming call. The circuit change means 37 When a result of distinction performed by the arrival-of-the-mail place attribute distinction means 52 is truth, it is characterized by having a means to apply a line switching network to a call setup of an incoming call of the Internet telephone as a trunk line replaced with a message switching network.

[0028] Invention according to claim 16 is characterized by the event detection means 11, 21, and 31 detecting a congestion condition of a message switching network as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15. Invention according to claim 17 is characterized by the event detection means 11, 21, and 31 detecting deterioration of a speech quality as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15.

[0029] Invention according to claim 18 is set to a circuit interface device given in any 1 term of claim 1 thru/or claim 17. A terminal which can serve as an arrival-of-the-mail place of a completed call of the Internet telephone or an originating call is held in a different network from a message switching network and a line switching network. For the storage means 12, 22, 22a, and 32 About each terminal which can serve as an arrival-of-the-mail place, combine with a subscriber's number and it is installed near the terminal. An alternative subscriber's number assigned to a terminal held in a line switching network is registered. And the event detection means 11, 21, and 31 About a completed call or an originating call, a network with which a terminal of an arrival-of-the-mail place was held lapses into a congestion condition. or a means to detect a specific event which shows that a failure occurred in the network -- having -- the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 When a specific event is detected by the event detection means 11, 21, and 31, it is characterized by having a means which precedes with dispatch to a line switching network, gives priority to an alternative subscriber's number registered into the storage means 12, 22, 22a, and 32, and is made into a number to be dialed.

[0030] Invention according to claim 19 is set to a circuit interface device given in any 1 term of claim 1 thru/or claim 18. It has a destination storage means 61 by which binary information which shows whether an incoming call should be transmitted about each terminal which can serve as an arrival-of-the-mail place, and the destination of the incoming call were memorized beforehand. the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 When a purport to which a value of binary information memorized by the destination storage means 61 corresponding to an arrival-of-the-mail place of a completed call of the Internet telephone or an originating call should be transmitted is shown, it is characterized by sending towards the destination memorized by this destination storage means 61 with that binary information.

[0031] Invention according to claim 20 is set to a circuit interface device given in any 1 term of claim 1 thru/or claim 19. A destination storage means 71 by which binary information which shows whether an incoming call should be transmitted about each terminal which can serve as an arrival-of-the-mail place, and the destination of the incoming call were memorized beforehand, the circuit change means 16 and 26 and 26a- in process of a call setup which 26j and 37 perform with the application of a line switching network as a trunk line When a purport to which a value of binary information memorized by the destination storage means 71 corresponding to an arrival-of-the-mail place of an incoming call of the Internet telephone should be transmitted is shown It is characterized by having a transfer means 72 to transmit that incoming call towards the destination memorized by this destination storage means 71 with that binary information.

[0032] The call setup which the alternative circuit prehension means 13 made a subscriber's number registered into the storage means 12 about a terminal which is an arrival-of-the-mail place when an event which arises in a message switching network which forms a trunk line, and becomes hindrance of a message or the factor of deterioration of a speech quality about a completed call of the Internet telephone was detected by the event detection means 11 a number to be dialed, and sent to a line switching network, and is adapted for the line switching network with the circuit interface device in connection with invention according to claim 1 performs. Furthermore, the alternative circuit formation distinction means 15 distinguishes whether an arrival-of-the-mail place which counters through a line switching network mentioned above in process of the call setup answered. Moreover, the circuit change means 16 replaces that a result of the distinction is truth with a message switching network, and applies

a line switching network as a trunk line.

[0033] On the other hand, it is arranged face to face through a line switching network, and distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 12 corresponding to a terminal which is an arrival-of-the-mail place about a completed call in which an event which mentioned above the alternative circuit means forming 14 occurred by circuit interface device in connection with this invention, and when a result of that distinction is truth, it answers to this call. Furthermore, the circuit change means 16 replaces with a message switching network that a result of distinction performed by the alternative circuit means forming 14 is truth, and applies a line switching network as a trunk line.

[0034] That is, about a completed call of the Internet telephone, when it originates in an event produced with a message switching network and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. therefore -- regardless of a failure of a message switching network, congestion, and transmission capacity -- accuracy -- good high message service is offered.

[0035] In a circuit interface device in connection with invention according to claim 2 The alternative circuit prehension means 23 about each of a completed call of the Internet telephone which occurs in parallel If hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of a sending agency and an arrival-of-the-mail place is sent out to the line switching network. Furthermore, the alternative circuit formation distinction means 25 distinguishes whether an arrival-of-the-mail place which is the process of a call setup performed by doing in this way, and counters through a line switching network answered. Moreover, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0036] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention The alternative circuit means forming 24 about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of dispatch origin given through this line switching network and an arrival-of-the-mail place is acquired. Furthermore, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network tied between arrival-of-the-mail places, respectively dispatch origin shown by identification information acquired by the alternative circuit means forming 24, replaces the circuit with a message switching network, and applies it as a trunk line.

[0037] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0038] In a circuit interface device in connection with invention according to claim 3 Alternative circuit prehension means 23a about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a

number to be dialed, and sending to a line switching network and performing a call setup. It sends out to a trunk line which identification information of a sending agency was formed in the line switching network, and was formed in a message switching network in identification information of an arrival-of-the-mail place, respectively. Furthermore, alternative circuit formation distinction means 25a is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26a specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0039] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention. Alternative circuit means forming 24a about a completed call in which an event mentioned above occurred. When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call. Identification information of dispatch origin given through this line switching network and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network are acquired. Furthermore, when a result of distinction performed by doing in this way is truth, circuit change means 26a specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin shown by identification information acquired by alternative circuit means forming 24a, replaces the circuit with a message switching network, and applies it as a trunk line.

[0040] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0041] In a circuit interface device in connection with invention according to claim 4. Alternative circuit prehension means 23b about each of a completed call of the Internet telephone which occurs in parallel. When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line. While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup. Identification information of an arrival-of-the-mail place is sent out to the line switching network at a trunk line formed in a message switching network in identification information of a sending agency, respectively. Furthermore, alternative circuit formation distinction means 25b is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26b specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0042] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention. Alternative circuit means forming 24b about a completed call in which an event mentioned above occurred. When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call. Identification information of an arrival-of-the-mail place given through this line switching network and identification information of dispatch origin given through a trunk line formed in a message switching network are acquired. Furthermore, when a result of distinction which did in this way and was performed by alternative circuit means forming 24b is truth, circuit change means 26b specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin shown by



identification information acquired by the alternative circuit means forming 24b, replaces the circuit with a message switching network, and applies it as a trunk line.

[0043] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0044] In a circuit interface device in connection with invention according to claim 5 Alternative circuit prehension means 23c about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of a sending agency and an arrival-of-the-mail place is sent out to a trunk line formed in a message switching network. Furthermore, alternative circuit formation distinction means 25c is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26c specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, and applies it as a trunk line which replaced the circuit with a message switching network, and mentioned it above.

[0045] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24c about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of dispatch origin given through a message switching network which is a trunk line, and an arrival-of-the-mail place is acquired. Furthermore, when a result of distinction performed by alternative circuit means forming 24c in this way is truth, circuit change means 26c specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24c, replaces the circuit with a message switching network, and applies it as a trunk line.

[0046] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0047] In a circuit interface device in connection with invention according to claim 6 23d of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of an arrival-of-the-mail place is sent out to the line switching network. Furthermore, 25d of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of



a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0048] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24d of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of an arrival-of-the-mail place given through this line switching network is acquired. Furthermore, when a result of distinction which did in this way and was performed by 24d of alternative circuit means forming is truth, 26d of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information acquired dispatch origin of a completed call from which that result was obtained by 24d of this alternative circuit means forming, they replace that circuit with a message switching network, and apply it as a trunk line.

[0049] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0050] In a circuit interface device in connection with invention according to claim 7 Alternative circuit prehension means 23e about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of an arrival-of-the-mail place is sent out to a trunk line formed in a message switching network. Furthermore, alternative circuit formation distinction means 25e is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0051] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24e about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network is acquired. Furthermore, when a result of distinction which did in this way and was performed by alternative circuit means forming 24e is truth, circuit change means 26e specifies a circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information acquired by this alternative circuit means forming 24e dispatch origin of a completed call from which that result was obtained, replaces that circuit with a message switching network, and applies it as a trunk line.

[0052] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission

capacity.

[0053] In a circuit interface device in connection with invention according to claim 8 23f of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of a sending agency is sent out to the line switching network. Furthermore, 25f of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, 26f of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, they replace the circuit with a message switching network, and apply it as a trunk line.

[0054] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24f of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of dispatch origin given through this line switching network is acquired. Moreover, when a result of distinction which did in this way and was performed by 24f of alternative circuit means forming is truth, 26f of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places of a completed call from which the result was obtained dispatch origin shown by identification information acquired by 24f of the alternative circuit means forming, they replace the circuit with a message switching network, and apply it as a trunk line.

[0055] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0056] In a circuit interface device in connection with invention according to claim 9 23g of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, identification information of a sending agency is sent out to a trunk line formed in a message switching network. Furthermore, 25g of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, 26g of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, they replace the circuit with a message switching network, and apply it as a trunk line.

[0057] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24g of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification

information of dispatch origin given through a trunk line formed in a message switching network is acquired. Moreover, when a result of distinction which did in this way and was performed by 24g of alternative circuit means forming is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places of a completed call from which this result was obtained dispatch origin shown by identification information acquired by 24g of that alternative circuit means forming, replaces that circuit with a message switching network, and applies it as a trunk line.

[0058] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0059] In a circuit interface device in connection with invention according to claim 10 23h of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into storage means 22a to a terminal with an arrival-of-the-mail place about a completed call in which that event occurred, respectively the sending agency as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup, identification information of this arrival-of-the-mail place is sent out to that line switching network. Furthermore, 25h of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, 26h of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, they replace the circuit with a message switching network, and apply it as a trunk line.

[0060] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24h of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into storage means 22a, and answering to this call, identification information of an addresser number given through this line switching network and an arrival-of-the-mail place is acquired. moreover, when a result of distinction which carried out 26h of circuit change means in this way, and was performed by 24h of alternative circuit means forming is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by 24h of this alternative circuit means forming, A circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information acquired by 24h of the alternative circuit means forming is specified, the circuit is replaced with a message switching network, and it applies as a trunk line.

[0061] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0062] In a circuit interface device in connection with invention according to claim 11 Alternative circuit prehension means 23i about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching

network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup Identification information of the arrival-of-the-mail place is sent out to a trunk line formed in a message switching network. Furthermore, alternative circuit formation distinction means 25i is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26i specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0063] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24i about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into storage means 22a, and answering to this call An addresser number given through this line switching network and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network are acquired. moreover, when a result of distinction which carried out circuit change means 26i in this way, and was performed by alternative circuit means forming 24i is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by this alternative circuit means forming 24i, A circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information acquired by the alternative circuit means forming 24i is specified, the circuit is replaced with a message switching network, and it applies as a trunk line.

[0064] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0065] In a circuit interface device in connection with invention according to claim 12 Alternative circuit prehension means 23j about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line A subscriber's number registered into storage means 22a to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively is set up as an addresser number and a number to be dialed, and it sends to a line switching network, and a call setup is performed. Furthermore, alternative circuit formation distinction means 25j is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26j specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0066] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24j about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into storage means 22a, and answering to this call, an addresser number given through this line switching network is acquired. moreover, when a result of distinction which carried out circuit change means 26j in this way, and was performed by alternative circuit means forming 24j is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's

number equal to an addresser number acquired by the alternative circuit means forming 24j, A circuit of a line switching network which connects between arrival-of-the-mail places of a completed call from which the result was obtained is specified, the circuit is replaced with a message switching network, and it applies as a trunk line.

[0067] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0068] In a circuit interface device in connection with invention according to claim 13, the alternative circuit prehension means 33 performs a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of the originating call, and was adapted for the line switching network, when an event from which an originating call of the Internet telephone turns into an incompleting call is detected by the event detection means 31. Furthermore, the alternative circuit formation distinction means 35 is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, the re-dispatch means 36 is again sent as a trunk line which replaces a line switching network with a message switching network, when a result of the distinction is truth.

[0069] On the other hand, it is arranged face to face through a line switching network, and the alternative circuit means forming 34 distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 32 by circuit interface device in connection with this invention, and when a result of that distinction is truth, it answers to this call. Furthermore, the circuit change means 37 is applied to a call setup of an incoming call of the Internet telephone as a trunk line which replaces a line switching network with a message switching network, when a result of distinction which did in this way and was performed by the alternative circuit means forming 34 is truth.

[0070] namely, -- since formation and re-dispatch of a substitute trunk line to a line switching network are automatically performed about an originating call which originated in an event which occurred in a message switching network which forms a trunk line among originating calls of the Internet telephone, and turned into an incompleting call -- regardless of a failure, congestion, and transmission capacity of the message switching network -- accuracy -- message service is offered highly and promptly.

[0071] In a circuit interface device in connection with invention according to claim 14, an attribute which it has as the dispatch origin is beforehand registered into the sending agency attribute storage means 41 in a circuit interface device according to claim 13 about each terminal which can become dispatch origin of an originating call of the Internet telephone. Moreover, the sending agency attribute distinction means 42 distinguishes whether a specific attribute is included in an attribute registered into the sending agency attribute storage means 41 corresponding to dispatch origin of the originating call, when an originating call of the Internet telephone occurs. Furthermore, the alternative circuit prehension means 33 performs a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of an originating call mentioned above, and was adapted for the line switching network, when a result of the distinction is truth.

[0072] That is, since a trunk line has priority over a line switching network and is formed in an originating call of the Internet telephone according to the attribute of dispatch origin of the originating call, message service which was adapted for the attribute is offered. In a circuit interface device in connection with invention according to claim 15, an attribute which it has as the arrival-of-the-mail place is beforehand registered into the arrival-of-the-mail place attribute storage means 51 in a circuit interface device according to claim 13 about each terminal which can serve as an arrival-of-the-mail place of an originating call of the Internet telephone. Moreover, the arrival-of-the-mail place attribute

distinction means 52 distinguishes whether a specific attribute is included in an attribute registered into the arrival-of-the-mail place attribute storage means 51 corresponding to an arrival-of-the-mail place of the incoming call, when an incoming call of the Internet telephone occurs. Furthermore, the circuit change means 37 is applied to a call setup of an incoming call of the Internet telephone mentioned above as a trunk line which replaces a line switching network with a message switching network, when a result of the distinction is truth.

[0073] That is, since a trunk line has priority over a line switching network and is formed in an incoming call of the Internet telephone according to the attribute of an arrival-of-the-mail place of the incoming call, message service which was adapted for the attribute is offered.

[0074] In a circuit interface device in connection with invention according to claim 16, the event detection means 11, 21, and 31 detect a congestion condition of a message switching network as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15. namely, a time of the message switching network lapsing [ a trunk line replaced with a trunk line formed in a message switching network ] into a congestion condition -- a line switching network -- accuracy -- since it is formed highly, message service with a high speech quality is offered, being flexibly adapted for distribution of traffic.

[0075] In a circuit interface device in connection with invention according to claim 17, the event detection means 11, 21, and 31 detect deterioration of a speech quality as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15. That is, since a trunk line is formed in a line switching network about a call by which deterioration of a speech quality is not permitted truly among calls of the Internet telephone, it is avoided that originate in the trunk line being formed and use effectiveness of a line switching network falls unnecessarily.

[0076] In a circuit interface device in connection with invention according to claim 18, a terminal which can become any 1 term of claim 1 thru/or claim 17 in a circuit interface device of a publication with an arrival-of-the-mail place of a completed call of the Internet telephone or an originating call is held in a different network from a message switching network and a line switching network. Furthermore, about each terminal which can serve as an arrival-of-the-mail place of these completed calls or an originating call, an alternative subscriber's number assigned to a terminal which was installed near the terminal and held in a line switching network combines, and is registered into a subscriber's number by the storage means 12, 22, 22a, and 32.

[0077] moreover, the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 When a specific event which shows that a network with which a terminal of an arrival-of-the-mail place was held lapsed into a congestion condition, or a failure occurred on the network about a completed call or an originating call which actually occurred is detected by the event detection means 11, 21, and 31 It precedes with dispatch to a line switching network, priority is given to an alternative subscriber's number registered into the storage means 12, 22, 22a, and 32, and it considers as a number to be dialed.

[0078] namely, -- since dispatch to a terminal which was installed near the terminal and held in a line switching network is automatically performed when a possibility that a speech quality will become low is high, even if originating in a condition of a network that a terminal of an arrival-of-the-mail place was held, and becoming a completed call is obstructed or it serves as a completed call -- between the terminal and sending agencies -- accuracy -- a channel is formed highly.

[0079] In a circuit interface device in connection with invention according to claim 19, binary information which shows whether an incoming call should be transmitted about each terminal which can become with an arrival-of-the-mail place, and the destination of the incoming call are beforehand memorized by the destination storage means 61 in a circuit interface device given in any 1 term of claim 1 thru/or claim 18. moreover, the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 are sent towards the destination memorized by this destination storage means 61 with that binary information, when a purport to which a value of binary information memorized by the destination storage means 61 corresponding to an arrival-of-the-mail place of a completed call of the Internet telephone which actually occurred, or an originating call should be transmitted is shown.

[0080] That is, since re-dispatch through a trunk line which replaced with a trunk line formed in a



message switching network, and was formed in a line switching network is ensured to the destination beforehand set up about an arrival-of-the-mail place, convenience in connection with employment of a terminal which can serve as an arrival-of-the-mail place is raised. In a circuit interface device in connection with invention according to claim 20, binary information which shows whether an incoming call should be transmitted about each terminal which can become with an arrival-of-the-mail place, and the destination of the incoming call are beforehand memorized by the destination storage means 71 in a circuit interface device given in any 1 term of claim 1 thru/or claim 19.

[0081] It is the process of a call setup which 26j and 37 perform with the application of a line switching network as a trunk line. moreover, the transfer means 72 -- the circuit change means 16 and 26 and 26a- When a purport to which a value of binary information memorized by the destination storage means 71 corresponding to an arrival-of-the-mail place of an incoming call of the Internet telephone should be transmitted is shown, that incoming call is transmitted towards the destination memorized by this destination storage means 71 with that binary information.

[0082] That is, about a call which received a message through a trunk line which replaced with a trunk line formed in a message switching network, and was formed in a line switching network, since it is certainly transmitted to the destination beforehand set up about an arrival-of-the-mail place, convenience in connection with employment of a terminal which can serve as an arrival-of-the-mail place is raised.

[0083]

[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained to details based on a drawing.

[0084] Drawing 3 is drawing showing the operation gestalt corresponding to invention according to claim 1 to 20. In drawing, about what has the thing, the the same function, and the same configuration which are shown in drawing 13, the same sign is given and shown and the explanation is omitted here. The difference of a configuration with the conventional example shown in this operation gestalt and drawing 13 Replace with a terminal 141-1, 141-2, and it has a terminal 141-11, 141-21, respectively. The selection server 111 and Gateway 112 are connected to LAN 143-1. The management server 113 and Gateway 114 are connected to LAN 143-2, such Gateway 112 and 114 is further connected to a line switching network 115, and it is the subscriber line switched network (it is not illustrated.) of the line switching network 115. The held telephone 116 is a terminal 141-21. It is in the point installed in the installation neighborhood of a point.

[0085] In addition, about Gateway 112 and 114, since it is easy, it is assumed that it connects with a line switching network 115 through the subscriber line of an analog, respectively. moreover, about correspondence relation with the block diagram shown in this operation gestalt, drawing 1, and drawing 2 A router 142-1, 142-2 corresponds to the event detection means 11, 21, and 31. Gateway 112, the selection server 111, and the management server 113 correspond to the storage means 12, 22, 22a, and 32, the sending agency attribute storage means 41, the arrival-of-the-mail place attribute storage means 51, and the destination storage means 61 and 71. Gateway 112 -- the alternative circuit prehension means 13 and 23 and 23a- 23j, 33, the alternative circuit means forming 14 and 24, and 24a- 24j, 34, the alternative circuit formation distinction means 15 and 25, and 25a- 25j, 35, the circuit change means 16 and 26, and 26a- 26j, 37, and the transfer means 72 -- It corresponds to the re-dispatch means 36, the sending agency attribute distinction means 42, and the arrival-of-the-mail place attribute distinction means 52.

[0086] Drawing 4 is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 1, 16, and 17. Hereafter, with reference to drawing 3 and drawing 4, actuation of the operation gestalt corresponding to invention of a publication is explained to claims 1, 16, and 17. The terminal held in LAN 143-1 with this operation gestalt is a terminal 141-11. It is a chisel and the terminal held in LAN 143-2 is only a terminal 141-21.

[0087] Gateway 112 and 114 has the User Information table 121 which it combined with identification information and an IP address, and GW identification information which shows nearby Gateway, and the subscriber's number assigned to the Gateway in the line switching network 115 were matched, respectively, and was beforehand registered about each terminal which can serve as an arrival-of-the-



mail place of the call of the Internet telephone, as shown in drawing 5 .

[0088] Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. Terminal 141-11 Then the LAN interface section 145-1 "the thing which the Internet 144 lapsed into the congestion condition" from a router 142-1 -- the identification information (it is hereafter called "arrival-of-the-mail place identification information".) of the terminal 141-21 which that is shown through LAN 143-1, and is an arrival-of-the-mail place (message partner) when things are notified IP address (it is hereafter called the "arrival-of-the-mail place address".) "An alternative circuit formation demand" to include is given to Gateway 112 ( drawing 4 (1)).

[0089] Gateway 112 will be sent to a line switching network 115 by acquiring the subscriber's number and GW information which were matched with the "arrival-of-the-mail place identification information" and the arrival-of-the-mail place IP address which are included in the "alternative circuit formation demand", and were registered into the User Information table 121, and setting up the subscriber's number as a number to be dialed, if such "an alternative circuit formation demand" is given ( drawing 4 (2)).

[0090] moreover, Gateway 114 -- a line switching network 115 to a certain call (here, since it is easy, Gateway 112 assumes that it is the call which is a sending agency.) -- receiving a message ( drawing 4 (3)) -- LAN 143-2 -- minding -- terminal 141-21 "A notice of alternative line identification" which shows that is given ( drawing 4 (4)). terminal 141-21 Terminal 141-11 which is a message partner at that time when this "notice of alternative line identification" is recognized \*\*\*\*\* -- identification information (henceforth "sending agency identification information") and an IP address (henceforth the "sending agency address") are preserved, and "an alternative circuit Acknowledgement" is sent out to Gateway 114 through LAN 143-2 ( drawing 4 (5)).

[0091] Gateway 114 will answer Gateway 112 which counters based on the signal system of a line switching network 115, if this "alternative circuit Acknowledgement" is recognized ( drawing 4 (6)). When it recognizes that did in this way and Gateway 114 answered based on the signal system of a line switching network 115, Gateway 112 minds LAN 143-1, and is a terminal 141-11. "A notice of the completion of alternative circuit formation" which shows that is given ( drawing 4 (7)).

[0092] Terminal 141-11 After recognizing the "notice of the completion of alternative circuit formation", it replaces with a router 142-1, and the digital signal (here, since it is easy, it is assumed that it is given as a train of an IP packet.) which shows the message signal which follows Gateway 112 and should be sent out to it by the arrival-of-the-mail place is sent out ( drawing 4 (8)). Gateway 112 sends out these digital signals to a line switching network 115 one by one through the built-in modem (not shown) ( drawing 4 (9)).

[0093] On the other hand, it restores through the modem (not shown) in which the digital signal which does in this way and is given through a line switching network 115 was built, and LAN 143-2 is minded, and Gateway 114 is a terminal 141-21. It gives ( drawing 4 (10)). . Terminal 141-21 If a digital signal is given from Gateway 114 through LAN 143-2 after sending out "an alternative circuit Acknowledgement", as mentioned above applying succeedingly the "sending agency identification information" and the "sending agency address" which were preserved by preceding -- following -- a terminal 141-11 -- the digital signal (here, since it is easy, it is assumed that it is given as a train of an IP packet.) which shows the message signal which should be sent out to addressing It generates and the digital signal is sent out to Gateway 114 through LAN 143-2 ( drawing 4 (11)). .

[0094] Gateway 114 -- a modem as stated above -- minding -- such [ a line switching network 115 ] a digital signal -- sequential delivery ( drawing 4 (12)) and Gateway 112 -- the digital signal -- one by one -- LAN 143-2 -- minding -- terminal 141-21 It gives ( drawing 4 (13)). . Thus, according to this operation gestalt, since a message signal can be succeedingly sent and received through the trunk line of the alternative to which a terminal 141-11, 141-21 is replaced with the Internet 144, and it is automatically formed in a line switching network 115, and transit delay time amount is not sharply changed according to congestion etc., compared with the conventional example in which the trunk line

is formed only through the Internet 144, a speech quality is maintained highly.

[0095] Hereafter, the operation gestalt corresponding to invention according to claim 2 to 5 is explained. The difference of a configuration with this operation gestalt and the operation gestalt corresponding to invention given in claims 1, 16, and 17 As a dotted line shows to drawing 3, it is a terminal 141-11. Combine and terminal 141-12-141-1M are held in LAN 143-1. Terminal 141-21 It combines, a 141-22 to 141 to 2 N terminal is held in LAN 143-2, and it is in the point with which the selection server 111 and the management server 113 which the User Information table 121 as stated above replaces with Gateway 112 and 114 were equipped, respectively.

[0096] Drawing 6 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 2 to 7. Hereafter, with reference to drawing 3, drawing 5, and drawing 6, actuation of this operation gestalt corresponding to invention according to claim 2 to 5 is explained.

[0097] A terminal 141-11 is a terminal 141-21. When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. Terminal 141-11 Then the LAN interface section 145-1 "the thing which the Internet 144 lapsed into the congestion condition" from a router 142-1, if things are notified Terminal 141-21 which is an arrival-of-the-mail place (message partner) It combines with "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address." Terminal 141-11 which is a sending agency "An alternative circuit formation demand" including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 (drawing 6 (1)).

[0098] Gateway 112 will give the "arrival-of-the-mail place identification information" contained in that "alternative circuit formation demand", and the "User Information demand" including the "arrival-of-the-mail place address" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized (drawing 6 (2)). The selection server 111 gives "User Information" containing these subscriber's numbers and GW identification information to Gateway 112 through LAN 143-1 while acquiring the subscriber's number and GW identification information which were matched and were registered into the key by referring to the User Information table 121 as stated above by using as a key the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "User Information demand" (drawing 6 (3)).

[0099] Gateway 112 will be sent to a line switching network 115 by setting up the subscriber's number contained in the "User Information" as a number to be dialed, if such "User Information" is given (drawing 6 (4)). Moreover, Gateway 114 will answer based on the signal system which was adapted for the line switching network 115, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115 (drawing 6 (5)).

[0100] If it recognizes that carried out Gateway 112 in this way, and Gateway 114 answered based on the signal system of a line switching network 115 The modem which changed into the bit string of predetermined format the "arrival-of-the-mail place identification information", the "arrival-of-the-mail place address", the "sending agency identification information", and the "sending agency address" which are included in "an alternative circuit formation demand" mentioned above, and was built in (it is not illustrated.) It minds and sends out to a line switching network 115 (drawing 6 (6)).

[0101] The "arrival-of-the-mail place identification information", the "arrival-of-the-mail place address", the "sending agency identification information", and the "sending agency address" which were mentioned above are acquired by Gateway's 114 receiving such a bit string through a line switching network 115, and on the other hand, restoring through the built-in modem (not shown) (drawing 6 (7)). Furthermore, Gateway 114 is a terminal (here) shown by this arrival-of-the-mail place identification information among 141-21 to 141 to 2 N terminals. since it is easy, it is assumed that it is shown by the sign "141-21." Combine with the "arrival-of-the-mail place identification information", and the "arrival-of-the-mail place address", "sending agency identification information", and the "sending agency address" are included. And "a notice of alternative circuit formation" which shows that the trunk line replaced with a line switching network 115 at the Internet was formed is given through LAN 143-2

( drawing 6 (8)).

[0102] Terminal 141-21 Recognition of this "notice of alternative circuit formation" sends out "the alternative circuit Acknowledgement" containing the "sending agency identification information" contained in that "notice of alternative circuit formation" to Gateway 114 through LAN 143-2 ( drawing 6 (9)). Gateway 114 changes this "alternative circuit Acknowledgement" into a predetermined packet, and sends out that packet to a line switching network 115 through the built-in modem ( drawing 6 (10)).

[0103] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given ( drawing 6 (11)). The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to addressing through LAN 143-1 ( drawing 6 (12)).

[0104] It is sent out to a line switching network 115 by Gateway 112 like the bit mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given ( drawing 6 (13)). Terminal 141-21 After sending out "the alternative circuit Acknowledgement" mentioned above By replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal, if such a digital signal is given by Gateway 114 The digital signal which shows the message signal which should be sent out to a sending agency while maintaining the transmission line of the message signal sent out from the sending agency (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 6 (14)).

[0105] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 6 (15)). Thus, since according to this operation gestalt the trunk line replaced with the trunk line currently formed in the Internet which lapsed into the congestion condition is automatically formed through a line switching network 115 even if it is the case where the terminal which is held in LAN 143-1, 143-2, respectively, and can serve as dispatch origin of the Internet telephone or an arrival-of-the-mail place is plurality, respectively, a speech quality is maintained highly.

[0106] Hereafter, with reference to drawing 3 , drawing 5 , and drawing 6 , actuation of this operation gestalt corresponding to invention of a publication is explained to claims 6 and 7. The difference between this operation gestalt and the operation gestalt corresponding to invention according to claim 2 to 5 has Gateway 114 in the procedure of processing of identifying "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address."

[0107] Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. Terminal 141-11 Then the LAN interface section 145-1 "the thing which the Internet 144 lapsed into the congestion condition" from a router 142-1, if things are notified "An alternative circuit formation demand" constituted without including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1, including "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" ( drawing 6 (1)).

[0108] Gateway 112 will give the "arrival-of-the-mail place identification information" contained in that "alternative circuit formation demand", and the "User Information demand" including the "arrival-of-the-mail place address" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized ( drawing 6 (2)). The selection server 111 gives "User Information" containing these subscriber's numbers and GW identification information to Gateway 112 through LAN 143-1 while acquiring the subscriber's number and GW identification information which were matched and were registered into the key by referring to the User Information table 121 as stated above by using as a key the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "User Information demand" ( drawing 6 (3)).

[0109] Gateway 112 will be sent to a line switching network 115 by setting up the subscriber's number contained in the "User Information" as a number to be dialed, if such "User Information" is given ( drawing 6 (4)). Moreover, Gateway 114 will answer based on the signal system which was adapted for the line switching network 115, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115 ( drawing 6 (5)).

[0110] If it recognizes that carried out Gateway 112 in this way, and Gateway 114 answered based on the signal system of a line switching network 115 The "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" ("sending agency identification information" and the "sending agency address" are not included.) which are included in "an alternative circuit formation demand" mentioned above The modem changed and built in the bit string of predetermined format (it is not illustrated.) It minds and sends out to a line switching network 115 ( drawing 6 (6)).

[0111] The "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which were mentioned above by Gateway's 114 receiving such a bit string through a line switching network 115, and on the other hand restoring through the built-in modem (not shown) are acquired ( drawing 6 (7)). Furthermore, Gateway 114 is a terminal (here) shown by this arrival-of-the-mail place identification information among 141-21 to 141 to 2 N terminals. since it is easy, it is assumed that it is shown by the sign "141-21." "A notice of alternative circuit formation" which shows that the trunk line replaced with a line switching network 115 at the Internet was formed through LAN 143-2, including the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" is given ( drawing 6 (8)).

[0112] Terminal 141-21 Terminal 141-11 which is a message partner at that time when this "notice of alternative circuit formation" is recognized "The alternative circuit Acknowledgement" containing the shown "sending agency identification information" is sent out to Gateway 114 through LAN 143-2 ( drawing 6 (9)). Gateway 114 changes this "alternative circuit Acknowledgement" into a predetermined packet, and sends it out to a line switching network 115 through the modem in which that packet was built ( drawing 6 (10)). .

[0113] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given ( drawing 6 (11)). The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to addressing through LAN 143-1 ( drawing 6 (12)). .

[0114] It is sent out to a line switching network 115 by Gateway 112 like the bit string mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given ( drawing 6 (13)). . Terminal 141-21 If such a digital signal is given by Gateway 114 after sending out "an alternative circuit Acknowledgement" While maintaining the transmission line of the message signal sent out from the sending agency by replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal The digital signal which shows the message signal which should be sent out to a sending agency (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 6 (14)). .

[0115] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 6 (15)). . That is, the trunk line replaced with the trunk line currently formed in the Internet which lapsed into the congestion condition is automatically formed in a line switching network 115, without transmitting "sending agency identification information" and the "sending agency address" to Gateway 114 from Gateway 112, even if it is the case where the terminal which is held in LAN 143-1, 143-2, respectively, and can serve as dispatch origin of the Internet telephone or an arrival-of-the-mail place is plurality, respectively.

[0116] Therefore, according to this operation gestalt, compared with the operation gestalt corresponding to invention according to claim 2 to 5, the trunk line replaced with the Internet 144 is efficiently formed through a line switching network 115, and deterioration of the speech quality according to congestion

etc. is improved promptly. Drawing 7 is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 8 and 9.

[0117] Hereafter, with reference to drawing 3 and drawing 7, actuation of this operation gestalt corresponding to invention of a publication is explained to claims 8 and 9. The subscriber's number (henceforth "a specific subscriber's number") of the line switching network 115 assigned to Gateway 114 in order to form the trunk line replaced with the Internet 144 with this operation gestalt, when the terminals of an arrival-of-the-mail place are any of 141-21 to 141 to 2 N is single, and known.

[0118] Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. the LAN interface section 145-1 -- "the thing which the Internet 144 lapsed into the congestion condition" from a router 142-1, if things are notified Terminal 141-21 "Arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" are included. And terminal 141-11 which is a sending agency "An alternative circuit formation demand" constituted including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 (drawing 7 (1)).

[0119] Gateway 112 is sent to a line switching network 115 by setting up a specific subscriber's number as stated above as a number to be dialed, without giving "the User Information demand" in any way to the selection server 111, if this "alternative circuit formation demand" is recognized (drawing 7 (2)). Moreover, Gateway 114 will answer based on the signal system which was adapted for the line switching network 115, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115 (drawing 7 (3)).

[0120] Gateway 112 changes into the bit string of predetermined format the "sending agency identification information" and the "sending agency address" which are included in "an alternative circuit formation demand" which mentioned it above when it had recognized that did in this way and Gateway 114 answered based on the signal system of a line switching network 115, and sends them out to a line switching network 115 through the built-in modem (not shown) (drawing 7 (4)).

[0121] On the other hand, Gateway 114 acquires the "sending agency identification information" and the "sending agency address" which were mentioned above by receiving such a bit string through a line switching network 115 (drawing 7 (5)), and restoring through the built-in modem (not shown). Furthermore, Gateway 114 minds LAN 143-2, and is a 141-21 to 141 to 2 N terminal. The "end inquiries of an arrival-of-the-mail tip" including the "sending agency identification information" and the "sending agency address" is sent out all at once (drawing 7 (6)). 141-21 to 141 to 2 N terminal In the talk state of the Internet telephone Hold the "sending agency identification information" and the "sending agency address" which show the terminal of a sending agency as known information, and if the "end inquiry of an arrival-of-the-mail tip" mentioned above is recognized It distinguishes whether the "sending agency identification information" and the "sending agency address" which are included in the "end inquiry of an arrival-of-the-mail tip" correspond to such known information (drawing 7 (7)).

[0122] The terminal which has recognized that the result of the distinction is truth among 141-21 to 141 to 2 N terminals (here) since it is easy, it is assumed that it is shown by the sign "141-21." While giving "an inquiry response" which shows that to Gateway 114 through LAN 143-2, including the "receiving a message agency identification information" and the "receiving a message agency address" which show the terminal It recognizes that the trunk line replaced with a line switching network 115 at the Internet was formed (drawing 7 (8)).

[0123] If this "inquiry response" is recognized, Gateway 114 is combined with the "arrival-of-the-mail place identification information", and the "arrival-of-the-mail place address" which are included in that "inquiry response", changes "an alternative circuit Acknowledgement" including "sending agency identification information", and the "sending agency address" as stated above into a predetermined packet, and sends it out to a line switching network 115 through the modem in which that packet was built (drawing 7 (9)).

[0124] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given (drawing 7 (10)).

The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to addressing through LAN 143-1 ( drawing 7 (11)).

[0125] It is sent out to a line switching network 115 by Gateway 112 like the bit string mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given ( drawing 7 (12)).

Terminal 141-21 If the digital signal mentioned above by Gateway 114 is given after sending out "an inquiry response" as stated above While maintaining the transmission line of the message signal sent out from the sending agency by replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal The digital signal which shows the message signal which should be sent out to a sending agency (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 7 (13)).

[0126] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 7 (14)). That is, the trunk line replaced with the Internet which lapsed into the congestion condition is automatically formed through a line switching network, without transmitting "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" to Gateway 114 from Gateway 112, even if it is the case where two or more terminals held in LAN 143-2 can serve as an arrival-of-the-mail place of the Internet telephone.

[0127] Therefore, according to this operation gestalt, compared with the operation gestalt corresponding to invention according to claim 2 to 5, the trunk line replaced with the Internet 144 is efficiently formed in a line switching network 115, and deterioration of the speech quality according to congestion etc. is improved promptly. Drawing 8 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 10 to 12.

[0128] Hereafter, with reference to drawing 3, drawing 5, and drawing 8, actuation of this operation gestalt corresponding to invention according to claim 10 to 12 is explained. With this operation gestalt, ISDN which has a notice function of an addresser number is applied as a line switching network 115.

Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition.

[0129] Terminal 141-11 Then the LAN interface section 145-1 If "the Internet 144 lapsed into the congestion condition" is notified from a router 142-1 Terminal 141-21 which is an arrival-of-the-mail place It combines with "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address." Terminal 141-11 which is a sending agency "An alternative circuit formation demand" including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 ( drawing 8 (1)).

[0130] Gateway 112 will give "a sending-and-receiving User Information demand" including the "arrival-of-the-mail place identification information", the "arrival-of-the-mail place address", the "sending agency identification information", and the "sending agency address" which are included in that "alternative circuit formation demand" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized ( drawing 8 (2)). The selection server 111 acquires the subscriber's number (henceforth "the first subscriber's number") and GW identification information which were matched and were registered into the first key by referring to the User Information table 121 of the previous statement of the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "sending-and-receiving User Information demand" as the first key. Moreover, the selection server 111 acquires the subscriber's number (henceforth "the second subscriber's number") which was matched and was registered into the second key by referring to the User Information table 121 of the previous statement of the "sending agency identification information" and the "sending agency address" which are included in "a sending-and-receiving User Information demand" as the second key. Furthermore, the selection server 111 gives "sending-and-



receiving User Information" containing these the "first subscriber's number", GW identification information, and the "second subscriber's number" to Gateway 112 through LAN 143-1 ( drawing 8 (3)).

[0131] Gateway 112 will be sent to a line switching network 115 by setting up the "first subscriber's number" contained in the "sending-and-receiving User Information" as a number to be dialed, and setting up "the second subscriber's number" as an addresser number, if such "sending-and-receiving User Information" is given ( drawing 8 (4)). Moreover, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115, Gateway 114 will acquire the addresser number mentioned above based on the signal system which was adapted for the line switching network 115, and will answer ( drawing 8 (5)).

[0132] It is sent out to a line switching network 115, Gateway 112 changing into the bit string of predetermined format the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in "an alternative circuit formation demand" which mentioned it above when it had recognized that did in this way and Gateway 114 answered based on the signal system of a line switching network 115 ( drawing 8 (6)). On the other hand, Gateway 114 acquires the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which were mentioned above by receiving such a bit string and restoring through a line switching network 115 ( drawing 8 (7)).

[0133] Furthermore, Gateway 114 is a terminal (here) shown by this arrival-of-the-mail place identification information among 141-21 to 141 to 2 N terminals. since it is easy, it is assumed that it is shown by the sign "141-21." Through LAN 143-2, it combines with the "arrival-of-the-mail place identification information", and "a notice of alternative circuit formation" which shows that the trunk line replaced with the trunk line currently formed in the Internet was formed in the line switching network 115, including the "arrival-of-the-mail place address" is given ( drawing 8 (8)).

[0134] Terminal 141-21 Terminal 141-11 which is a sending agency when this "notice of alternative circuit formation" is recognized "The alternative circuit Acknowledgement" containing the shown "sending agency identification information" is sent out to Gateway 114 through LAN 143-2 ( drawing 8 (9)). Gateway 114 changes this "alternative circuit Acknowledgement" into a predetermined packet, and sends it out to a line switching network 115 through the modem in which that packet was built ( drawing 8 (10)). .

[0135] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given ( drawing 8 (11)). The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to addressing through LAN 143-1 ( drawing 8 (12)). .

[0136] It is sent out to a line switching network 115 by Gateway 112 like the bit string mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given ( drawing 8 (13)). . Terminal 141-21 If such a digital signal is given by Gateway 114 after sending out "an alternative circuit Acknowledgement" While maintaining the transmission line of the message signal sent out from the sending agency by replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal The digital signal which shows the message signal which should be sent out to a sending agency (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 8 (14)). .

[0137] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 8 (15)). . That is, even if it is the case where two or more terminals held in LAN 143-2 can serve as an arrival-of-the-mail place of the Internet telephone, the trunk line replaced with the Internet which lapsed into the congestion condition is automatically formed in a line switching network by not transmitting "sending agency identification information" and the "sending agency address" to Gateway 114 from Gateway 112, and utilizing the notice function of an



addresser number of a proper for a line switching network 115.

[0138] Therefore, according to this operation gestalt, compared with the operation gestalt corresponding to invention according to claim 2 to 5, the trunk line replaced with the Internet 144 is efficiently formed in a line switching network 115, and deterioration of the speech quality according to congestion etc. is improved promptly. In addition, although "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" are transmitted to Gateway 114 from Gateway 112 with this operation gestalt For example, it is the terminal 141-21 of an arrival-of-the-mail place at the process of the call setup of the Internet telephone. It combines with an addresser number. Since the junction way which can obtain addresser identification information and the addresser address, and is replaced with the Internet 144 is formed, when the subscriber's number of the line switching network 115 assigned to Gateway 114 is single These "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place addresses" do not need to be transmitted to claims 8 and 9 like the operation gestalt corresponding to invention of a publication at Gateway 114.

[0139] Moreover, at each operation gestalt mentioned above, it is the terminal 141-11 of a sending agency. Terminal 141-21 of an arrival-of-the-mail place After the trunk line replaced with the Internet 144 is formed in a line switching network 115, the sending-out place of the message signal which should be sent out according to an individual is changed to Gateway 112 and addressing to 114 leading, respectively. However, while Gateway 114 and a router 142-2 have the same address to LAN 143-2 and Gateway 112 and a router 142-1 have the same address to LAN 143-1 for example, the same change may be performed when such Gateway 112 and 114 regulates actuation of a router 142-1, 142-2, respectively.

[0140] Furthermore, although the trunk line which the Internet 144 replaces with a line switching network 115 at the Internet 144 with the event as the starting point which lapsed into the congestion condition is formed with each operation gestalt mentioned above For example, the same origin may be obtained by what "a speech quality is authorized based on the criteria (for example, result of the signal judging about the known pilot signal on which the message signal was overlapped) the terminal 141-11 was beforehand decided to be, and the speech quality recognizes for that it was less than the predetermined threshold."

[0141] Hereafter, this operation gestalt corresponding to invention according to claim 13 to 15 is explained. The trunk line formed in a line switching network 115 is not formed to the completed call of the Internet telephone, and the difference between this operation gestalt and the operation gestalt corresponding to invention according to claim 1 to 12 is in the point which is the trunk line of the alternative with which improvement in the rate of a completed call is presented.

[0142] In addition, about a line switching network 115, since it is easy, it is assumed that it is the telephone network of an analog here. Drawing 9 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 13 to 15. Hereafter, actuation of this operation gestalt is explained with reference to drawing 3, drawing 5, and drawing 9.

[0143] Terminal 141-11 Terminal 141-21 If it sends to addressing, the originating call which corresponds based on the procedure of a call setup will distinguish whether they are a completed call and \*\*\*\*. Furthermore, the LAN interface section 145-1 If it identifies that the originating call turned into an incompleting call according to a certain cause Terminal 141-21 which is an arrival-of-the-mail place It combines with "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address." Terminal 141-11 which is a sending agency "An alternative circuit formation demand" including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 ( drawing 9 (1)).

[0144] Gateway 112 will give the "arrival-of-the-mail place identification information" contained in that "alternative circuit formation demand", and the "User Information demand" including the "arrival-of-the-mail place address" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized ( drawing 9 (2)).

[0145] The selection server 111 gives "User Information" containing these subscriber's numbers and GW identification information to Gateway 112 through LAN 143-1 while acquiring the subscriber's

number and GW identification information which were matched and were registered into the key by referring to the User Information table 121 as stated above by using as a key the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "User Information demand" ( drawing 9 (3)).

[0146] Gateway 112 is sent to a line switching network 115 by setting up the subscriber's number contained in the "User Information" as a number to be dialed ( drawing 9 (4)). Gateway 112 and 114 and a terminal 141-11, and 141-21 hereafter By that ( drawing 9 (5) - (15)) which is coordinated like the operation gestalt corresponding to invention [ as stated above ] according to claim 2 to 5 Terminal 141-11 By using a line switching network 115 automatically as a trunk line replaced with the Internet 144 Terminal 141-21 which is a desired arrival-of-the-mail place through LAN 143-1, Gateway 112, a line switching network 115, Gateway 114, and LAN 143-2 In between, a channel is secured.

[0147] Therefore, also when the Internet 144 lapses into a congestion condition and the condition that it cannot use as a trunk line of the Internet telephone of a failure and others according to this operation gestalt, the terminal held in LAN 143-1, 143-2 can be certainly re-sent to the line switching network 115 which replaces the Internet 144 through the trunk line formed automatically.

[0148] In addition, although re-dispatch is performed automatically and the line switching network 115 is once applied as a trunk line with this operation gestalt when the originating call of the Internet telephone turns into an incompleting call For example, the attribute of the arrival-of-the-mail class and others of the origination class of the terminal of a sending agency, or the terminal of an arrival-of-the-mail place It is possible for it to be also flexibly adapted for the demand of various services by choosing either of the Internet and a line switching network as a trunk line, or being given priority and applied according to (for example, "the attribute which requires a high quality message").

[0149] Hereafter, the operation gestalt corresponding to invention according to claim 18 is explained. Drawing 10 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 18. For the difference of a configuration with this operation gestalt and the operation gestalt corresponding to invention according to claim 1 to 17, as shown in drawing 3, terminal 141a-11-141a-1M are terminal 141-11 -141-1M. The telephone 116 which replaced with, and it had and was connected to the line switching network 115 is a terminal 141-21. It is in the point arranged at the installation neighborhood of a point.

[0150] In addition, terminal 141a-11 Terminal 141-11 The difference of a configuration is in the point of having the circuit interface section 117-1 connected to the line switching network 115 through the subscriber line, as a dotted line shows to drawing 3. Moreover, about the configuration of terminal 141a-12-141a-1M, it is terminal 141a-11. Since it is the same as a configuration, the explanation and illustration are omitted here.

[0151] Hereafter, actuation of this operation gestalt is explained with reference to drawing 3, drawing 5, and drawing 10. As half tone dot meshing is attached and shown in drawing 5, about each terminal, the selection server 111 combines with identification information, an IP address, and a subscriber's number, replaces with the User Information table 121 User Information table 121a into which the "juxtaposition terminal subscriber's number" which shows the number of the telephone put side by side like the telephone 116 as stated above was registered, and has it.

[0152] Moreover, by carrying out the monitor of the stream signal for a monitor transmitted through the first pass of OSI about LAN 143-2, the management server 113 distinguishes whether it lapsed into the congestion condition (for example, condition in which the rate of time amount occupied by the packet exceeded 60%), and notifies the result of the distinction to a router 142-2 serially ( drawing 10 (1)).

[0153] Terminal 141a-11 Terminal 141-21 In the condition that send to addressing ( drawing 10 (2)), and the Internet 144 is applied as a trunk line, a router 142-2 is the result of the distinction mentioned above through the Internet 144, the router 142-1, and LAN 143-1 Terminal 141a-11 It notifies ( drawing 10 (3)).

[0154] Terminal 141a-11 If what "LAN 143-2 lapsed into the congestion condition" based on the result notified by doing in this way is recognized before the originating call of the corresponding Internet telephone turns into a completed call The "User Information demand" which is interrupted based on the

procedure in which it was able to opt for the call setup of the originating call beforehand ( drawing 10 (4)), and includes "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" is given to the selection server 111 through LAN 143-1 ( drawing 10 (5)).

[0155] "User Information" which the selection server 111 acquires the "juxtaposition terminal subscriber's number" registered into User Information table 121a corresponding to the combination of the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address", and contains the "juxtaposition terminal subscriber's number" -- LAN 143-1 -- minding -- terminal 141a-11 It gives ( drawing 10 (6)). terminal 141a-11 \*\*\*\* -- the circuit interface section 117-1 is sent to a line switching network 115 by setting up the "juxtaposition terminal subscriber's number" contained in the "User Information" as a number to be dialed ( drawing 10 (7)).

[0156] occurrence of such [ telephone 116 ] an originating call -- responding -- singing -- carrying out ( drawing 10 (8)) -- and an operator -- an off-hook condition -- becoming ( drawing 10 (9)) -- the circuit interface section 117-1 recognizes that based on the signal system of a line switching network 115 ( drawing 10 (10)) And about the message signal sent and received through the telephone set section 146-1, the interface based on the signal system is taken ( drawing 10 (11), (12)).

[0157] Namely, terminal 141-21 which is held in the LAN 143-2, and should serve as an arrival-of-the-mail place even if it is in the condition that LAN 143-2 has lapsed into the congestion condition Since dispatch which receives the telephone 116 put side by side is performed automatically, the whereabouts is a terminal 141-21. Means of communications is secured among message partners with clear it being the circumference. Hereafter, the operation gestalt corresponding to invention of a publication is explained to claims 19 and 20.

[0158] Drawing 11 is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 19 and 20. Hereafter, actuation of drawing 3, drawing 5, and this operation gestalt corresponding to invention given in drawing 11 is explained. 141-21 to 141 to 2 N terminal held in LAN 143-2 as the management server 113 was combined with the User Information table 121 (121a) shown in drawing 5 and it was shown in drawing 12 \*\*\*\*\* -- the "destination identification information" which shows the destination of an incoming call has the transfer control table 131 registered according to the individual.

[0159] terminal 141-21 \*\*\*\* -- the case where an operator moves to the location in which other terminals (for example, terminal 141-1M held in LAN 143-1) were installed -- the identification information (henceforth "destination identification information") of the terminal 141-1M, and terminal 141-21 It specifies through the control unit which does not have identification information (henceforth "source information") illustrated. Terminal 141-21 "A transfer registration demand" containing the "destination identification information" specified by doing in this way and "source identification information" is given to the management server 113 through LAN 143-2 ( drawing 11 (1)). And binary information shown [ "whether does it follow and the occurring incoming call should be transmitted" and ] (here, since it is easy, it is assumed that it is held at a terminal 141-21.) A logical value is set as "1" and it stands by.

[0160] The management server 113 registers the "destination identification information" given to the record corresponding to the "source identification information" contained in "a transfer registration demand" mentioned above among the records which constitute the transfer control table 131 with this "source identification information." moreover, terminal 141-21 the operation gestalt corresponding to invention given in any of claims 1-18 they are -- the same -- carrying out -- a certain incoming call (any of the Internet 144 and a line switching network 115 may be applied as a trunk line.) -- receiving a message ( drawing 11 (2)) -- Although it distinguishes whether the logical value of the binary information mentioned above is "1", and the corresponding incoming call is received when the result of the distinction is "0" When it is "1" on the contrary, it is a terminal 141-21. The "transfer request" containing identification information is given to the management server 113 through LAN 143-2 ( drawing 11 (3)).

[0161] The management server 113 obtains the IP address included in that record, a subscriber's number, GW identification information, and a juxtaposition terminal subscriber's number while specifying the

record with which the "destination identification information" registered into the transfer control table 131 corresponding to the identification information contained in that "transfer request" is acquired, and this "destination identification information" is contained as identification information among the records of the User Information table 121 (121a).

[0162] Furthermore, the management server 113 applies suitably the IP address obtained by doing in this way, a subscriber's number, GW identification information, and a juxtaposition terminal subscriber's number as the "arrival-of-the-mail address" etc., respectively, and transmits the corresponding incoming call by what dispatch to the Internet 144 or the subscriber line switched network 115 is performed for (drawing 11 (4)) like the operation gestalt corresponding to invention given in any of claim 1 - claim 18 they are.

[0163] namely, the channel which results in a message partner's destination since dispatch to the terminal put side by side to the terminal of the destination is ensured when LAN in which the trunk line replaced with the Internet 144 which lapsed into the congestion condition was formed in through the line switching network 115, and the terminal of the destination was held has lapsed into the congestion condition, even if it is a forwarded call -- accuracy -- it is formed highly.

[0164] In addition, at this operation gestalt, it is the terminal 141-21 of an arrival-of-the-mail place. Although transfer processing is performed by the nearby management server 113 For example, a nearby management server and a nearby selection server have the transfer control User Information table 131 and 121 (121a) as stated above to the terminal of a sending agency. And while performing processing as stated above according to "a transfer registration demand" given through the Internet 144 or a line switching network 115 The "sending agency identification information", the "sending agency address" which are given with the terminal of a sending agency, According to "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address", same transfer processing may be realized by referring to these transfer control tables 131 and User Information tables 121 (121a) as stated above.

[0165] Moreover, at this operation gestalt, it is the terminal 141-21 of an arrival-of-the-mail place. Although the necessity of transfer processing is distinguished by distinguishing the logical value of the binary information on as stated above, for example, the time zone and schedule on which the transfer processing should be performed may be registered into the transfer control table 131, and the necessity and the destination of transfer processing may be set up based on the time zone and schedule.

[0166] Furthermore, although "sending agency identification information", the "sending agency address", "arrival-of-the-mail place identification information", and the "arrival-of-the-mail place address" are transmitted to Gateway 114 by Gateway 112 through the line switching network 115 with each operation gestalt mentioned above for example, in being small to the degree with which the transit delay time amount of the Internet 144 from a sending agency to an arrival-of-the-mail place is permitted All such "sending agency identification information", the "sending agency addresses", the "arrival-of-the-mail place identification information", and "arrival-of-the-mail place addresses" may be transmitted through the Internet 144. [ all / some or ]

[0167] Moreover, with each operation gestalt mentioned above, although the detection method of LAN 143-1 and the congestion condition of the Internet 144 is not described by details, if it is well-known and adapted for the transmission system and communication procedure which were applied to these LANs 143-1 and the Internet 144, what kind of technology may be applied about the technology of detecting such a congestion condition.

[0168] Furthermore, although the process in which the contents of the User Information table 121 (121a) are set up or updated is not explained at all by each operation gestalt mentioned above, about such contents, the man machine interface which is initialized as system configuration information or office information at the time of starting of a system, or enables updating according to directions of the person in charge in connection with employment or maintenance may be taken.

[0169] Moreover, although the pass formed in the Internet 144 is not canceled at all with each operation gestalt mentioned above, for example, when the Internet 144 lapses into a congestion condition, it may be canceled, or may be again used as a trunk line according to recovery of the congestion condition.

[0170] Furthermore, when the pass which did in this way and was formed in the Internet 144 is used again, by opening wide the trunk line of the alternative formed in the line switching network 115, the resource of the line switching network 115 may be used effectively, and reduction of cost may be aimed at. Moreover, although the signal system applied to the line switching network 115 is not explained in full detail and Gateway 112 and 114 is connected to the line switching network 115 through the subscriber line with each operation gestalt mentioned above, such Gateway 112 and 114 may be connected to a line switching network 115 based on the signal system (any of an analog form and a digital method are sufficient.) which should be applied for example, between stations.

[0171] Furthermore, with each operation gestalt mentioned above, although the message signal is transmitted through the line switching network 115 as "a digital signal which shows the train of an IP packet", such a message signal may be changed and transmitted to the sign (PCM signal (the signal which shows the sign train generated based on AD-PCM system and the delta modulation system is included.)) of predetermined format, or an analog signal.

[0172] Moreover, although the trunk line replaced with the trunk line formed in the Internet is formed in the line switching network 115 with each operation gestalt mentioned above, if message switching is carried out to the unit of a packet or a cel, this invention can be applied also like the network of intranet and others, for example, and may be constituted only from the single node instead of a distributed process input output equipment switched network like the Internet or intranet by such network.

[0173] Furthermore, functional distribution is measured with each operation gestalt mentioned above by the selection server 111 and Gateway 112 which were connected to LAN 143-1. Or although the trunk line is formed in the line switching network 115 which replaces the Internet 144 when functional distribution is measured by the management server 113 and Gateway 114 which were held in LAN 143-2 This invention may be mounted in the single personal computer which is not held in LAN at all, for example, and may be constituted as single equipment possessing the same function as these selection servers 111, Gateway 112 and 114, and the management server 113.

[0174] Moreover, about such equipment, when to operate only as the dispatch origin of the Internet telephone or an arrival-of-the-mail place is demanded for example, you may have a configuration equivalent to the combination of the selection server 111 and Gateway 112, or the combination of the management server 113 and Gateway 114.

[0175]

[Effect of the Invention] it mentioned above -- as -- invention according to claim 1 to 12 -- regardless of the failure of a message switching network, congestion, and transmission capacity -- accuracy -- good high message service is offered.

[0176] moreover -- invention according to claim 13 -- regardless of the failure, congestion, and transmission capacity of a message switching network -- accuracy -- message service is offered highly and promptly. Furthermore, in invention according to claim 14, the message service which was adapted for the attribute is offered by a trunk line's having priority over a line switching network, and forming it according to the attribute of a sending agency.

[0177] Moreover, in invention according to claim 15, the message service which was adapted for the attribute is offered by a trunk line's having priority over a line switching network, and forming it according to the attribute of an arrival-of-the-mail place. furthermore, the trunk line replaced with the trunk line formed in the message switching network in invention according to claim 16 when a message switching network lapses into a congestion condition -- a line switching network -- accuracy -- it is formed highly, and the message service with a high speech quality is offered, being flexibly adapted for distribution of traffic.

[0178] Moreover, in invention according to claim 17, it is avoided that originate in a substitute trunk line being formed and the use effectiveness of a line switching network falls unnecessarily. Furthermore, originating in the condition of a network that the terminal of an arrival-of-the-mail place was held, in invention according to claim 18, and becoming a completed call is obstructed. or the thing for which dispatch to the terminal which was installed near the terminal and held in the line switching network is automatically performed when a possibility that a speech quality will become low is high, even if it

becomes a completed call -- between the terminal and sending agencies -- accuracy -- a channel is formed highly.

[0179] Moreover, in invention according to claim 19, the convenience in connection with employment of the terminal which can serve as the arrival-of-the-mail place is raised by ensuring re-dispatch through the trunk line formed in the line switching network to the destination beforehand set up about the arrival-of-the-mail place. Furthermore, in invention according to claim 20, since the call which received a message through the trunk line formed in the line switching network is certainly transmitted to the destination set up beforehand, the convenience in connection with employment of the terminal which can serve as an arrival-of-the-mail place is raised.

[0180] Therefore, at the message switching network with which these invention was applied, and the terminal of the message switching network, message service of a high speech quality is offered like the existing telephone network by utilizing a line switching network to the call of the Internet telephone.

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[Translation done.]



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**TECHNICAL FIELD**

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[The technical field to which invention belongs] This invention relates to the circuit interface device which forms in a line switching network the trunk line of the call of the Internet telephone which occurred they to be [ any of an information processor and the terminal information processor held in LAN ].

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[Translation done.]

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## PRIOR ART

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[Description of the Prior Art] The Internet telephone cheaply provided with service of a long distance call or an international message is spreading by multimedia-izing many information processors, such as a personal computer, and utilizing the Internet and intranet as a trunk line in recent years.

[0003] Moreover, such an Internet telephone is becoming available at the terminal connected to many LANs according to cheap-izing and spread of a router or bridges which connect between LANs.

Drawing 13 is drawing showing the terminal which uses the Internet telephone through LAN. In drawing, a terminal 141-1 and a router 142-1 are connected to LAN 143-1, and a terminal 141-2 and a router 142-2 are connected to LAN 143-2. These routers 142-1, 142-2 are mutually connected through the Internet 144.

[0004] Moreover, a terminal 141-1 is combined with the LAN interface section 145-1 which takes an interface with LAN 143-1, and the microphone and receiver which are not illustrated, and equips the acoustic signal sent and received through these microphones and receivers with the telephone set section 146-1 which performs predetermined signal processing. In addition, about the configuration of a terminal 141-2, since it is the same as the configuration of a terminal 141-1, the explanation is omitted here.

[0005] In the process in which send to a terminal 141-2 from a terminal 141-1, and the message by the Internet telephone is performed in such a conventional example of a configuration, for example The unique host address with which the terminal 141-1 was assigned beforehand, By sending and receiving an IP packet including a network address including the address of the terminal 141-2 which is an arrival-of-the-mail place by predetermined to a terminal 141-2 and mutual through LAN 143-1, a router 142-1, the Internet 144, a router 142-2, and LAN 143-2 A call setup is performed.

[0006] Moreover, at a terminal 141-1, if it recognizes having changed into the condition that it can talk over the telephone as a result of the call setup mentioned above, respectively, by sound---electrical-and-electric-equipment-changing and compression encoding [ voice / which was uttered by the sender, respectively ], the telephone set section 146-1 will be changed into a sign train, and will be given to a router 142-1 one by one through the LAN interface section 145-1 and LAN 143-1. Furthermore, a router 142-1 changes the sign train into an IP packet, and sends it out towards the Internet 144.

[0007] On the other hand, the router 142-2 which counters through the Internet 144 restores the sign train included in this IP packet, and gives it to a terminal 141-2 through LAN 143-2. Moreover, at a terminal 141-2, the LAN interface section 145-2 and the telephone set section 146-2 are given to a message partner by making voice as stated above into an acoustic signal by performing processing opposite to the processing which the LAN interface section 145-1 and telephone 146-1 perform in a terminal 141-1 as mentioned above.

[0008] Furthermore, about the voice uttered by the sender (message partner) in the terminal 141-2, processing as stated above is reversibly performed in parallel by the telephone set section 146-2, the LAN interface section 145-2, a router 142-2, 142-1, a router 142-1, the LAN interface section 145-1, and the telephone set section 146-1. Therefore, between a terminal 141-1 and a terminal 141-2, a channel is cheaply formed by applying the Internet 144 as a trunk line compared with the case where the trunk line

is formed in a public telephone network.

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[Translation done.]

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] it mentioned above -- as -- invention according to claim 1 to 12 -- regardless of the failure of a message switching network, congestion, and transmission capacity -- accuracy -- good high message service is offered.

[0176] moreover -- invention according to claim 13 -- regardless of the failure, congestion, and transmission capacity of a message switching network -- accuracy -- message service is offered highly and promptly. Furthermore, in invention according to claim 14, the message service which was adapted for the attribute is offered by a trunk line's having priority over a line switching network, and forming it according to the attribute of a sending agency.

[0177] Moreover, in invention according to claim 15, the message service which was adapted for the attribute is offered by a trunk line's having priority over a line switching network, and forming it according to the attribute of an arrival-of-the-mail place. furthermore, the trunk line replaced with the trunk line formed in the message switching network in invention according to claim 16 when a message switching network lapses into a congestion condition -- a line switching network -- accuracy -- it is formed highly, and the message service with a high speech quality is offered, being flexibly adapted for distribution of traffic.

[0178] Moreover, in invention according to claim 17, it is avoided that originate in a substitute trunk line being formed and the use effectiveness of a line switching network falls unnecessarily. Furthermore, in invention according to claim 18, it originates in the condition of a network that the terminal of an arrival-of-the-mail place was held. even if becoming a completed call is obstructed or it serves as a completed call, when a possibility that a speech quality will become low is high, dispatch to the terminal which was installed near the terminal and held in the line switching network is performed automatically -- between the terminal and sending agencies -- accuracy -- a channel is formed highly.

[0179] Moreover, in invention according to claim 19, the convenience in connection with employment of the terminal which can serve as the arrival-of-the-mail place is raised by ensuring re-dispatch through the trunk line formed in the line switching network to the destination beforehand set up about the arrival-of-the-mail place. Furthermore, in invention according to claim 20, since the call which received a message through the trunk line formed in the line switching network is certainly transmitted to the destination set up beforehand, the convenience in connection with employment of the terminal which can serve as an arrival-of-the-mail place is raised.

[0180] Therefore, at the message switching network with which these invention was applied, and the terminal of the message switching network, message service of a high speech quality is offered like the existing telephone network by utilizing a line switching network to the call of the Internet telephone.

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[Translation done.]

**\* NOTICES \***

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] By the way, if the Internet 144 lapses into a congestion condition, in order for the transmission speed of an IP packet mentioned above to fall remarkably in the conventional example mentioned above, for example, there was a case where the sound signal restored at a receiver edge was overlapped on an unnecessary noise, and a speech quality deteriorated, or the effectiveness of a message fell.

[0010] In addition, as technology which eases the deterioration of a speech quality and the decline in the effectiveness of a message which were mentioned above, application of the technology which carries out compression coding of the voice with high compressibility is possible. However, deterioration of a speech quality was not canceled in the condition that much traffic concentrates on a specific node insufficiently [ the transmission capacity of the backbone circuit which a provider holds ] as for such technology.

[0011] This invention is characterized by offering the circuit interface device to which a speech quality is secured highly, even if the transmission efficiency of the Internet is in the condition which fell remarkably.

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[Translation done.]

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**MEANS**

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[Means for Solving the Problem] Drawing 1 is claims 1-12 and the principle block diagram of invention given in 16-20.

[0013] An event detection means 11 by which invention according to claim 1 detects hindrance of a message, and a certain event which is and causes deterioration of a speech quality about a completed call of the Internet telephone among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 12 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 11 An alternative circuit prehension means 13 to perform a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 12 about a terminal which is the arrival-of-the-mail place of a completed call, and was adapted for the line switching network, The alternative circuit means forming 14 which distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 12, and answers to this call about a completed call in which an event occurred when a result of that distinction is truth, The alternative circuit formation distinction means 15 which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by the alternative circuit prehension means 13, When either of a result of distinction performed by the alternative circuit means forming 14 and a result of distinction performed by the alternative circuit formation distinction means 15 is truth, it is characterized by having a circuit change means 16 to replace with a message switching network and to apply a line switching network as a trunk line.

[0014] Invention according to claim 2 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup An alternative circuit prehension means 23 to send out identification information of a sending agency and an arrival-of-the-mail place to the line switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by the alternative circuit means forming 24 which acquires identification information of dispatch origin given through the line switching network, and an arrival-of-the-mail place, and the alternative circuit prehension means 23 When a result of distinction performed by the alternative circuit formation distinction means 25 which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and the alternative circuit means



forming 24 is truth When a result of distinction performed by the alternative circuit formation distinction means 25 between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24 is truth It is characterized by having a circuit change means 26 to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0015] Invention according to claim 3 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23a sent out to a trunk line which identification information of a sending agency was formed in the line switching network, and was formed in a message switching network in identification information of an arrival-of-the-mail place, respectively, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred Alternative circuit means forming 24a which acquires identification information of dispatch origin given through the line switching network, and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network, Alternative circuit formation distinction means 25a which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by alternative circuit prehension means 23a, When a result of distinction performed by alternative circuit means forming 24a is truth When a result of distinction performed by alternative circuit formation distinction means 25a between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24a is truth It is characterized by having circuit change means 26a which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0016] Invention according to claim 4 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23b which sends out identification information of an arrival-of-the-mail place to the line switching network at a trunk line formed in a message switching network in identification information of a sending agency, respectively, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred Alternative circuit means forming 24b which acquires identification information of an arrival-of-the-mail place given through the line switching network, and identification information of dispatch origin given through a trunk line formed in a message switching network, Alternative circuit formation distinction means 25b which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by the alternative circuit prehension

means 41, When a result of distinction performed by alternative circuit means forming 24b is truth When a result of distinction performed by alternative circuit formation distinction means 25b between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24b is truth It is characterized by having circuit change means 26b which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0017] Invention according to claim 5 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23c which sends out identification information of a sending agency and an arrival-of-the-mail place to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by alternative circuit means forming 24c which acquires identification information of dispatch origin given through a message switching network which is a trunk line, and an arrival-of-the-mail place, and alternative circuit prehension means 23c When a result of distinction performed by alternative circuit formation distinction means 25c which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and alternative circuit means forming 24c is truth When a result of distinction performed by alternative circuit formation distinction means 25c between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24c is truth It is characterized by having circuit change means 26c which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0018] Invention according to claim 6 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup 23d of alternative circuit prehension means to send out identification information of an arrival-of-the-mail place to the line switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24d of alternative circuit means forming which acquires identification information of an arrival-of-the-mail place given through the line switching network, and 23d of alternative circuit prehension means When a result of distinction performed by 25d of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24d of alternative circuit means forming is truth Between arrival-of-the-mail places shown by identification information acquired dispatch origin of a completed call from

which that result was obtained by 24d of this alternative circuit means forming, and when a result of distinction performed by 25d of alternative circuit formation distinction means is truth It is characterized by having 26d of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0019] Invention according to claim 7 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23e which sends out identification information of an arrival-of-the-mail place to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by alternative circuit means forming 24e which acquires identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network, and alternative circuit prehension means 23e When a result of distinction performed by alternative circuit formation distinction means 25e which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and alternative circuit means forming 24e is truth Between arrival-of-the-mail places shown by identification information acquired by this alternative circuit means forming 24e dispatch origin of a completed call from which that result was obtained, and when a result of distinction performed by alternative circuit formation distinction means 25e is truth It is characterized by having circuit change means 26e which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0020] Invention according to claim 8 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup 23f of alternative circuit prehension means to send out identification information of a sending agency to the line switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24f of alternative circuit means forming which acquires identification information of dispatch origin given through the line switching network, and 23f of alternative circuit prehension means When a result of distinction performed by 25f of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24f of alternative circuit means forming is truth Between arrival-of-the-mail places of a completed call from which the result was obtained dispatch origin shown by identification information acquired by 24f of the alternative circuit means forming, and when a result of distinction performed by 25f of alternative circuit

formation distinction means is truth It is characterized by having 26f of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0021] Invention according to claim 9 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, When an event is detected by a storage means 22 by which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as an arrival-of-the-mail place of a completed call was registered, and the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup 23g of alternative circuit prehension means to send out identification information of a sending agency to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 22, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24g of alternative circuit means forming which acquires identification information of dispatch origin given through a trunk line formed in a message switching network, and 23g of alternative circuit prehension means When a result of distinction performed by 25g of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24g of alternative circuit means forming is truth Between arrival-of-the-mail places of a completed call from which this result was obtained dispatch origin shown by identification information acquired by 24g of that alternative circuit means forming, and when a result of distinction performed by 25g of alternative circuit formation distinction means is truth It is characterized by having 26g of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0022] Invention according to claim 10 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, Storage means 22a into which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of a completed call and an arrival-of-the-mail place was registered, and when an event is detected by the event detection means 21 While setting up a subscriber's number registered into storage means 22a to a terminal with an arrival-of-the-mail place about a completed call in which the event occurred, respectively the sending agency as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup 23h of alternative circuit prehension means to send out identification information of this arrival-of-the-mail place to that line switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into storage means 22a, and answering to this call about a completed call in which an event occurred In process of a call setup performed by 24h of alternative circuit means forming which acquires identification information of an addresser number given through the line switching network, and an arrival-of-the-mail place, and 23h of alternative circuit prehension means When a result of distinction performed by 25h of alternative circuit formation distinction means which distinguish whether an arrival-of-the-mail place which counters through a line switching network answered, and 24h of alternative circuit means forming is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by 24h of this alternative circuit means forming, When a result of distinction performed by 25h of alternative circuit formation distinction means between arrival-of-the-mail places shown by identification information

acquired by 24h of the alternative circuit means forming is truth It is characterized by having 26h of circuit change means to specify a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, to replace the circuit with a message switching network, and to apply as a trunk line.

[0023] Invention according to claim 11 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, Storage means 22a into which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of a completed call and an arrival-of-the-mail place was registered, and when an event is detected by the event detection means 21 While setting up a subscriber's number registered into the storage means 22 to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup Alternative circuit prehension means 23i which sends out identification information of the arrival-of-the-mail place to a trunk line formed in a message switching network, When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into storage means 22a, and answering to this call about a completed call in which an event occurred Alternative circuit means forming 24i which acquires an addresser number given through the line switching network, and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network, Alternative circuit formation distinction means 25i which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by alternative circuit prehension means 23i, When a result of distinction performed by alternative circuit means forming 24i is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by this alternative circuit means forming 24i, When a result of distinction performed by alternative circuit formation distinction means 25i between arrival-of-the-mail places shown by identification information acquired by the alternative circuit means forming 24i is truth It is characterized by having circuit change means 26i which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0024] Invention according to claim 12 about each of a completed call of the Internet telephone which occurs in parallel An event detection means 21 to detect hindrance of a message, and a certain event which is and causes deterioration of a speech quality among events produced in a message switching network which forms a trunk line, Storage means 22a into which a subscriber's number of a line switching network beforehand assigned to each terminal which can serve as dispatch origin of a completed call and an arrival-of-the-mail place was registered, and when an event is detected by the event detection means 21 Set up a subscriber's number registered into storage means 22a to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively as an addresser number and a number to be dialed, and it sends to a line switching network. and about alternative circuit prehension means 23j which performs a call setup, and a completed call in which an event occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into storage means 22a, and answering to this call In process of a call setup performed by alternative circuit means forming 24j which acquires an addresser number given through the line switching network, and alternative circuit prehension means 23j When a result of distinction performed by alternative circuit formation distinction means 25j which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered, and alternative circuit means forming 24j is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by the alternative circuit means forming 24j, When a result of distinction performed by alternative circuit formation distinction means 25j between arrival-of-the-mail places of a completed call

from which the result was obtained is truth It is characterized by having circuit change means 26j which specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and is applied as a trunk line.

[0025] Drawing 2 is the principle block diagram of invention according to claim 13 to 20. An event detection means 31 by which, as for invention according to claim 13, an originating call of the Internet telephone detects an event used as an incompleting call, When an event is detected by a storage means 32 by which a subscriber's number of a line switching network assigned beforehand was registered about each terminal which can serve as an arrival-of-the-mail place of an originating call of the Internet telephone, and the event detection means 31 An alternative circuit prehension means 33 to perform a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of an originating call, and was adapted for the line switching network, The alternative circuit means forming 34 which distinguishes whether a call receives a message from a line switching network in a subscriber's number registered into the storage means 32, and answers to this call when a result of that distinction is truth, The alternative circuit formation distinction means 35 which distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered in process of a call setup performed by the alternative circuit prehension means 33, When a result of distinction performed by the alternative circuit formation distinction means 35 is truth When a result of distinction performed by re-dispatch means 36 to send a line switching network again as a trunk line replaced with a message switching network, and the alternative circuit means forming 34 is truth It is characterized by having a circuit change means 37 to apply a line switching network to a call setup of an incoming call of the Internet telephone as a trunk line replaced with a message switching network.

[0026] Invention according to claim 14 is set to a circuit interface device according to claim 13. When a sending agency attribute storage means 41 by which an attribute which it has as the dispatch origin was beforehand registered about each terminal which can become dispatch origin of an originating call of the Internet telephone, and an originating call of the Internet telephone occur It has the sending agency attribute distinction means 42 which distinguishes whether a specific attribute is included in an attribute registered into the sending agency attribute storage means 41 corresponding to dispatch origin of the originating call. The alternative circuit prehension means 33 When a result of distinction performed by the sending agency attribute distinction means 42 is truth It is characterized by having a means to perform a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of an originating call, and was adapted for the line switching network.

[0027] Invention according to claim 15 is set to a circuit interface device according to claim 13. When an arrival-of-the-mail place attribute storage means 51 by which an attribute which it has as the arrival-of-the-mail place was beforehand registered about each terminal which can serve as an arrival-of-the-mail place of an originating call of the Internet telephone, and an incoming call of the Internet telephone occur It has the arrival-of-the-mail place attribute distinction means 52 which distinguishes whether a specific attribute is included in an attribute registered into the arrival-of-the-mail place attribute storage means 51 corresponding to an arrival-of-the-mail place of the incoming call. The circuit change means 37 When a result of distinction performed by the arrival-of-the-mail place attribute distinction means 52 is truth, it is characterized by having a means to apply a line switching network to a call setup of an incoming call of the Internet telephone as a trunk line replaced with a message switching network.

[0028] Invention according to claim 16 is characterized by the event detection means 11, 21, and 31 detecting a congestion condition of a message switching network as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15. Invention according to claim 17 is characterized by the event detection means 11, 21, and 31 detecting deterioration of a speech quality as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15.

[0029] Invention according to claim 18 is set to a circuit interface device given in any 1 term of claim 1 thru/or claim 17. A terminal which can serve as an arrival-of-the-mail place of a completed call of the



Internet telephone or an originating call is held in a different network from a message switching network and a line switching network. For the storage means 12, 22, 22a, and 32 About each terminal which can serve as an arrival-of-the-mail place, combine with a subscriber's number and it is installed near the terminal. An alternative subscriber's number assigned to a terminal held in a line switching network is registered. And the event detection means 11, 21, and 31 About a completed call or an originating call, a network with which a terminal of an arrival-of-the-mail place was held lapses into a congestion condition. or a means to detect a specific event which shows that a failure occurred in the network -- having -- the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 When a specific event is detected by the event detection means 11, 21, and 31, it is characterized by having a means which precedes with dispatch to a line switching network, gives priority to an alternative subscriber's number registered into the storage means 12, 22, 22a, and 32, and is made into a number to be dialed.

[0030] Invention according to claim 19 is set to a circuit interface device given in any 1 term of claim 1 thru/or claim 18. It has a destination storage means 61 by which binary information which shows whether an incoming call should be transmitted about each terminal which can serve as an arrival-of-the-mail place, and the destination of the incoming call were memorized beforehand. the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 When a purport to which a value of binary information memorized by the destination storage means 61 corresponding to an arrival-of-the-mail place of a completed call of the Internet telephone or an originating call should be transmitted is shown, it is characterized by sending towards the destination memorized by this destination storage means 61 with that binary information.

[0031] Invention according to claim 20 is set to a circuit interface device given in any 1 term of claim 1 thru/or claim 19. A destination storage means 71 by which binary information which shows whether an incoming call should be transmitted about each terminal which can serve as an arrival-of-the-mail place, and the destination of the incoming call were memorized beforehand, the circuit change means 16 and 26 and 26a- in process of a call setup which 26j and 37 perform with the application of a line switching network as a trunk line When a purport to which a value of binary information memorized by the destination storage means 71 corresponding to an arrival-of-the-mail place of an incoming call of the Internet telephone should be transmitted is shown It is characterized by having a transfer means 72 to transmit that incoming call towards the destination memorized by this destination storage means 71 with that binary information.

[0032] The call setup which the alternative circuit prehension means 13 made a subscriber's number registered into the storage means 12 about a terminal which is an arrival-of-the-mail place when an event which arises in a message switching network which forms a trunk line, and becomes hindrance of a message or the factor of deterioration of a speech quality about a completed call of the Internet telephone was detected by the event detection means 11 a number to be dialed, and sent to a line switching network, and is adapted for the line switching network with the circuit interface device in connection with invention according to claim 1 performs. Furthermore, the alternative circuit formation distinction means 15 distinguishes whether an arrival-of-the-mail place which counters through a line switching network mentioned above in process of the call setup answered. Moreover, the circuit change means 16 replaces that a result of the distinction is truth with a message switching network, and applies a line switching network as a trunk line.

[0033] On the other hand, it is arranged face to face through a line switching network, and distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 12 corresponding to a terminal which is an arrival-of-the-mail place about a completed call in which an event which mentioned above the alternative circuit means forming 14 occurred by circuit interface device in connection with this invention, and when a result of that distinction is truth, it answers to this call. Furthermore, the circuit change means 16 replaces with a message switching network that a result of distinction performed by the alternative circuit means forming 14 is truth, and applies a line switching network as a trunk line.

[0034] That is, about a completed call of the Internet telephone, when it originates in an event produced with a message switching network and offer of message service is not permitted, a trunk line replaced

with a trunk line formed in the message switching network is automatically formed in a line switching network. therefore -- regardless of a failure of a message switching network, congestion, and transmission capacity -- accuracy -- good high message service is offered.

[0035] In a circuit interface device in connection with invention according to claim 2 The alternative circuit prehension means 23 about each of a completed call of the Internet telephone which occurs in parallel If hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of a sending agency and an arrival-of-the-mail place is sent out to the line switching network. Furthermore, the alternative circuit formation distinction means 25 distinguishes whether an arrival-of-the-mail place which is the process of a call setup performed by doing in this way, and counters through a line switching network answered. Moreover, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0036] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention The alternative circuit means forming 24 about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of dispatch origin given through this line switching network and an arrival-of-the-mail place is acquired. Furthermore, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network tied between arrival-of-the-mail places, respectively dispatch origin shown by identification information acquired by the alternative circuit means forming 24, replaces the circuit with a message switching network, and applies it as a trunk line.

[0037] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0038] In a circuit interface device in connection with invention according to claim 3 Alternative circuit prehension means 23a about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup It sends out to a trunk line which identification information of a sending agency was formed in the line switching network, and was formed in a message switching network in identification information of an arrival-of-the-mail place, respectively. Furthermore, alternative circuit formation distinction means 25a is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26a specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0039] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24a about a

completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call Identification information of dispatch origin given through this line switching network and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network are acquired. Furthermore, when a result of distinction performed by doing in this way is truth, circuit change means 26a specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin shown by identification information acquired by alternative circuit means forming 24a, replaces the circuit with a message switching network, and applies it as a trunk line. [0040] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0041] In a circuit interface device in connection with invention according to claim 4 Alternative circuit prehension means 23b about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup Identification information of an arrival-of-the-mail place is sent out to the line switching network at a trunk line formed in a message switching network in identification information of a sending agency, respectively. Furthermore, alternative circuit formation distinction means 25b is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26b specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0042] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24b about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call Identification information of an arrival-of-the-mail place given through this line switching network and identification information of dispatch origin given through a trunk line formed in a message switching network are acquired. Furthermore, when a result of distinction which did in this way and was performed by alternative circuit means forming 24b is truth, circuit change means 26b specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24b, replaces the circuit with a message switching network, and applies it as a trunk line.

[0043] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0044] In a circuit interface device in connection with invention according to claim 5 Alternative circuit prehension means 23c about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality

are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of a sending agency and an arrival-of-the-mail place is sent out to a trunk line formed in a message switching network. Furthermore, alternative circuit formation distinction means 25c is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26c specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, and applies it as a trunk line which replaced the circuit with a message switching network, and mentioned it above. [0045] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24c about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of dispatch origin given through a message switching network which is a trunk line, and an arrival-of-the-mail place is acquired. Furthermore, when a result of distinction performed by alternative circuit means forming 24c in this way is truth, circuit change means 26c specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin shown by identification information acquired by the alternative circuit means forming 24c, replaces the circuit with a message switching network, and applies it as a trunk line.

[0046] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0047] In a circuit interface device in connection with invention according to claim 6 23d of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of an arrival-of-the-mail place is sent out to the line switching network. Furthermore, 25d of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0048] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24d of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of an arrival-of-the-mail place given through this line switching network is acquired. Furthermore, when a result of distinction which did in this way and was performed by 24d of alternative circuit means forming is truth, 26d of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information

acquired dispatch origin of a completed call from which that result was obtained by 24d of this alternative circuit means forming, they replace that circuit with a message switching network, and apply it as a trunk line.

[0049] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0050] In a circuit interface device in connection with invention according to claim 7 Alternative circuit prehension means 23e about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of an arrival-of-the-mail place is sent out to a trunk line formed in a message switching network. Furthermore, alternative circuit formation distinction means 25e is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0051] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24e about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network is acquired. Furthermore, when a result of distinction which did in this way and was performed by alternative circuit means forming 24e is truth, circuit change means 26e specifies a circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information acquired by this alternative circuit means forming 24e dispatch origin of a completed call from which that result was obtained, replaces that circuit with a message switching network, and applies it as a trunk line.

[0052] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0053] In a circuit interface device in connection with invention according to claim 8 23f of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to a line switching network and performing a call setup, identification information of a sending agency is sent out to the line switching network. Furthermore, 25f of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered.

Moreover, when a result of the distinction is truth, 26f of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, they replace the circuit with a message switching network, and apply it as a trunk line.

[0054] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24f of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of dispatch origin given through this line switching network is acquired. Moreover, when a result of distinction which did in this way and was performed by 24f of alternative circuit means forming is truth, 26f of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places of a completed call from which the result was obtained dispatch origin shown by identification information acquired by 24f of the alternative circuit means forming, they replace the circuit with a message switching network, and apply it as a trunk line.

[0055] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0056] In a circuit interface device in connection with invention according to claim 9 23g of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of an arrival-of-the-mail place about a completed call in which the event occurred as a number to be dialed, and sending to said line switching network and performing a call setup, identification information of a sending agency is sent out to a trunk line formed in a message switching network. Furthermore, 25g of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, 26g of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, they replace the circuit with a message switching network, and apply it as a trunk line.

[0057] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24g of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 22, and answering to this call, identification information of dispatch origin given through a trunk line formed in a message switching network is acquired. Moreover, when a result of distinction which did in this way and was performed by 24g of alternative circuit means forming is truth, the circuit change means 26 specifies a circuit of a line switching network which connects between arrival-of-the-mail places of a completed call from which this result was obtained dispatch origin shown by identification information acquired by 24g of that alternative circuit means forming, replaces that circuit with a message switching network, and applies it as a trunk line.

[0058] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message



service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0059] In a circuit interface device in connection with invention according to claim 10 23h of alternative circuit prehension means about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into storage means 22a to a terminal with an arrival-of-the-mail place about a completed call in which that event occurred, respectively the sending agency as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup, identification information of this arrival-of-the-mail place is sent out to that line switching network. Furthermore, 25h of alternative circuit formation distinction means is the process of the call setup, and they distinguish whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, 26h of circuit change means specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, they replace the circuit with a message switching network, and apply it as a trunk line.

[0060] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention 24h of alternative circuit means forming about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into storage means 22a, and answering to this call, identification information of an addresser number given through this line switching network and an arrival-of-the-mail place is acquired. moreover, when a result of distinction which carried out 26h of circuit change means in this way, and was performed by 24h of alternative circuit means forming is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by 24h of this alternative circuit means forming, A circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information acquired by 24h of the alternative circuit means forming is specified, the circuit is replaced with a message switching network, and it applies as a trunk line.

[0061] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0062] In a circuit interface device in connection with invention according to claim 11 Alternative circuit prehension means 23i about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line While setting up a subscriber's number registered into the storage means 22 to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively as an addresser number and a number to be dialed, and sending to a line switching network and performing a call setup Identification information of the arrival-of-the-mail place is sent out to a trunk line formed in a message switching network. Furthermore, alternative circuit formation distinction means 25i is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26i specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0063] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24i about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into storage means 22a, and answering to this call An addresser number given through this line switching network and identification information of an arrival-of-the-mail place given through a trunk line formed in a message switching network are acquired. moreover, when a result of distinction which carried out circuit change means 26i in this way, and was performed by alternative circuit means forming 24i is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by this alternative circuit means forming 24i, A circuit of a line switching network which connects between arrival-of-the-mail places shown by identification information acquired by the alternative circuit means forming 24i is specified, the circuit is replaced with a message switching network, and it applies as a trunk line.

[0064] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0065] In a circuit interface device in connection with invention according to claim 12 Alternative circuit prehension means 23j about each of a completed call of the Internet telephone which occurs in parallel When hindrance of a message and a certain event which is and causes deterioration of a speech quality are detected by the event detection means 21 among events produced in a message switching network which forms a trunk line A subscriber's number registered into storage means 22a to a terminal of a sending agency and an arrival-of-the-mail place about a completed call in which the event occurred, respectively is set up as an addresser number and a number to be dialed, and it sends to a line switching network, and a call setup is performed. Furthermore, alternative circuit formation distinction means 25j is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, when a result of the distinction is truth, circuit change means 26j specifies a circuit of a line switching network which connects between arrival-of-the-mail places dispatch origin of a completed call from which the result was obtained, respectively, replaces the circuit with a message switching network, and applies it as a trunk line.

[0066] On the other hand, it is arranged face to face through a line switching network, and by circuit interface device in connection with this invention Alternative circuit means forming 24j about a completed call in which an event mentioned above occurred When a result of that distinction is truth, while it distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into storage means 22a, and answering to this call, an addresser number given through this line switching network is acquired. moreover, when a result of distinction which carried out circuit change means 26j in this way, and was performed by alternative circuit means forming 24j is truth Dispatch origin registered into storage means 22a corresponding to a subscriber's number equal to an addresser number acquired by the alternative circuit means forming 24j, A circuit of a line switching network which connects between arrival-of-the-mail places of a completed call from which the result was obtained is specified, the circuit is replaced with a message switching network, and it applies as a trunk line.

[0067] That is, about a completed call of two or more Internet telephones which have occurred in parallel, even if it is in a condition that originate in an event produced with a message switching network, and offer of message service is not permitted, a trunk line replaced with a trunk line formed in the message switching network is automatically formed in a line switching network. Therefore, message service is offered regardless of a failure of a message switching network, congestion, and transmission capacity.

[0068] In a circuit interface device in connection with invention according to claim 13, the alternative

circuit prehension means 33 performs a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of the originating call, and was adapted for the line switching network, when an event from which an originating call of the Internet telephone turns into an incompleting call is detected by the event detection means 31. Furthermore, the alternative circuit formation distinction means 35 is the process of the call setup, and distinguishes whether an arrival-of-the-mail place which counters through a line switching network answered. Moreover, the re-dispatch means 36 is again sent as a trunk line which replaces a line switching network with a message switching network, when a result of the distinction is truth.

[0069] On the other hand, it is arranged face to face through a line switching network, and the alternative circuit means forming 34 distinguishes whether a call receives a message from that line switching network in a subscriber's number registered into the storage means 32 by circuit interface device in connection with this invention, and when a result of that distinction is truth, it answers to this call. Furthermore, the circuit change means 37 is applied to a call setup of an incoming call of the Internet telephone as a trunk line which replaces a line switching network with a message switching network, when a result of distinction which did in this way and was performed by the alternative circuit means forming 34 is truth.

[0070] namely, -- since formation and re-dispatch of a substitute trunk line to a line switching network are automatically performed about an originating call which originated in an event which occurred in a message switching network which forms a trunk line among originating calls of the Internet telephone, and turned into an incompleting call -- regardless of a failure, congestion, and transmission capacity of the message switching network -- accuracy -- message service is offered highly and promptly.

[0071] In a circuit interface device in connection with invention according to claim 14, an attribute which it has as the dispatch origin is beforehand registered into the sending agency attribute storage means 41 in a circuit interface device according to claim 13 about each terminal which can become dispatch origin of an originating call of the Internet telephone. Moreover, the sending agency attribute distinction means 42 distinguishes whether a specific attribute is included in an attribute registered into the sending agency attribute storage means 41 corresponding to dispatch origin of the originating call, when an originating call of the Internet telephone occurs. Furthermore, the alternative circuit prehension means 33 performs a call setup which sent to a line switching network by having made into a number to be dialed a subscriber's number registered into the storage means 32 about a terminal which should serve as an arrival-of-the-mail place of an originating call mentioned above, and was adapted for the line switching network, when a result of the distinction is truth.

[0072] That is, since a trunk line has priority over a line switching network and is formed in an originating call of the Internet telephone according to the attribute of dispatch origin of the originating call, message service which was adapted for the attribute is offered. In a circuit interface device in connection with invention according to claim 15, an attribute which it has as the arrival-of-the-mail place is beforehand registered into the arrival-of-the-mail place attribute storage means 51 in a circuit interface device according to claim 13 about each terminal which can serve as an arrival-of-the-mail place of an originating call of the Internet telephone. Moreover, the arrival-of-the-mail place attribute distinction means 52 distinguishes whether a specific attribute is included in an attribute registered into the arrival-of-the-mail place attribute storage means 51 corresponding to an arrival-of-the-mail place of the incoming call, when an incoming call of the Internet telephone occurs. Furthermore, the circuit change means 37 is applied to a call setup of an incoming call of the Internet telephone mentioned above as a trunk line which replaces a line switching network with a message switching network, when a result of the distinction is truth.

[0073] That is, since a trunk line has priority over a line switching network and is formed in an incoming call of the Internet telephone according to the attribute of an arrival-of-the-mail place of the incoming call, message service which was adapted for the attribute is offered.

[0074] In a circuit interface device in connection with invention according to claim 16, the event detection means 11, 21, and 31 detect a congestion condition of a message switching network as an

event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15. namely, a time of the message switching network lapsing [ a trunk line replaced with a trunk line formed in a message switching network ] into a congestion condition -- a line switching network -- accuracy -- since it is formed highly, message service with a high speech quality is offered, being flexibly adapted for distribution of traffic.

[0075] In a circuit interface device in connection with invention according to claim 17, the event detection means 11, 21, and 31 detect deterioration of a speech quality as an event in a circuit interface device given in any 1 term of claim 1 thru/or claim 15. That is, since a trunk line is formed in a line switching network about a call by which deterioration of a speech quality is not permitted truly among calls of the Internet telephone, it is avoided that originate in the trunk line being formed and use effectiveness of a line switching network falls unnecessarily.

[0076] In a circuit interface device in connection with invention according to claim 18, a terminal which can become any 1 term of claim 1 thru/or claim 17 in a circuit interface device of a publication with an arrival-of-the-mail place of a completed call of the Internet telephone or an originating call is held in a different network from a message switching network and a line switching network. Furthermore, about each terminal which can serve as an arrival-of-the-mail place of these completed calls or an originating call, an alternative subscriber's number assigned to a terminal which was installed near the terminal and held in a line switching network combines, and is registered into a subscriber's number by the storage means 12, 22, 22a, and 32.

[0077] moreover, the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 When a specific event which shows that a network with which a terminal of an arrival-of-the-mail place was held lapsed into a congestion condition, or a failure occurred on the network about a completed call or an originating call which actually occurred is detected by the event detection means 11, 21, and 31 It precedes with dispatch to a line switching network, priority is given to an alternative subscriber's number registered into the storage means 12, 22, 22a, and 32, and it considers as a number to be dialed. [0078] namely, -- since dispatch to a terminal which was installed near the terminal and held in a line switching network is automatically performed when a possibility that a speech quality will become low is high, even if originating in a condition of a network that a terminal of an arrival-of-the-mail place was held, and becoming a completed call is obstructed or it serves as a completed call -- between the terminal and sending agencies -- accuracy -- a channel is formed highly.

[0079] In a circuit interface device in connection with invention according to claim 19, binary information which shows whether an incoming call should be transmitted about each terminal which can become with an arrival-of-the-mail place, and the destination of the incoming call are beforehand memorized by the destination storage means 61 in a circuit interface device given in any 1 term of claim 1 thru/or claim 18. moreover, the alternative circuit prehension means 13 and 23 and 23a- 23j and 33 are sent towards the destination memorized by this destination storage means 61 with that binary information, when a purport to which a value of binary information memorized by the destination storage means 61 corresponding to an arrival-of-the-mail place of a completed call of the Internet telephone which actually occurred, or an originating call should be transmitted is shown.

[0080] That is, since re-dispatch through a trunk line which replaced with a trunk line formed in a message switching network, and was formed in a line switching network is ensured to the destination beforehand set up about an arrival-of-the-mail place, convenience in connection with employment of a terminal which can serve as an arrival-of-the-mail place is raised. In a circuit interface device in connection with invention according to claim 20, binary information which shows whether an incoming call should be transmitted about each terminal which can become with an arrival-of-the-mail place, and the destination of the incoming call are beforehand memorized by the destination storage means 71 in a circuit interface device given in any 1 term of claim 1 thru/or claim 19.

[0081] It is the process of a call setup which 26j and 37 perform with the application of a line switching network as a trunk line. moreover, the transfer means 72 -- the circuit change means 16 and 26 and 26a- When a purport to which a value of binary information memorized by the destination storage means 71 corresponding to an arrival-of-the-mail place of an incoming call of the Internet telephone should be

transmitted is shown, that incoming call is transmitted towards the destination memorized by this destination storage means 71 with that binary information.

[0082] That is, about a call which received a message through a trunk line which replaced with a trunk line formed in a message switching network, and was formed in a line switching network, since it is certainly transmitted to the destination beforehand set up about an arrival-of-the-mail place, convenience in connection with employment of a terminal which can serve as an arrival-of-the-mail place is raised.

[0083]

[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained to details based on a drawing.

[0084] Drawing 3 is drawing showing the operation gestalt corresponding to invention according to claim 1 to 20. In drawing, about what has the thing, the the same function, and the same configuration which are shown in drawing 13, the same sign is given and shown and the explanation is omitted here. The difference of a configuration with the conventional example shown in this operation gestalt and drawing 13 Replace with a terminal 141-1, 141-2, and it has a terminal 141-11, 141-21, respectively. The selection server 111 and Gateway 112 are connected to LAN 143-1. The management server 113 and Gateway 114 are connected to LAN 143-2, such Gateway 112 and 114 is further connected to a line switching network 115, and it is the subscriber line switched network (it is not illustrated.) of the line switching network 115. The held telephone 116 is a terminal 141-21. It is in the point installed in the installation neighborhood of a point.

[0085] In addition, about Gateway 112 and 114, since it is easy, it is assumed that it connects with a line switching network 115 through the subscriber line of an analog, respectively. moreover, about correspondence relation with the block diagram shown in this operation gestalt, drawing 1, and drawing 2. A router 142-1, 142-2 corresponds to the event detection means 11, 21, and 31. Gateway 112, the selection server 111, and the management server 113 correspond to the storage means 12, 22, 22a, and 32, the sending agency attribute storage means 41, the arrival-of-the-mail place attribute storage means 51, and the destination storage means 61 and 71. Gateway 112 -- the alternative circuit prehension means 13 and 23 and 23a- 23j, 33, the alternative circuit means forming 14 and 24, and 24a- 24j, 34, the alternative circuit formation distinction means 15 and 25, and 25a- 25j, 35, the circuit change means 16 and 26, and 26a- 26j, 37, and the transfer means 72 -- It corresponds to the re-dispatch means 36, the sending agency attribute distinction means 42, and the arrival-of-the-mail place attribute distinction means 52.

[0086] Drawing 4 is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 1, 16, and 17. Hereafter, with reference to drawing 3 and drawing 4, actuation of the operation gestalt corresponding to invention of a publication is explained to claims 1, 16, and 17. The terminal held in LAN 143-1 with this operation gestalt is a terminal 141-11. It is a chisel and the terminal held in LAN 143-2 is only a terminal 141-21.

[0087] Gateway 112 and 114 has the User Information table 121 which it combined with identification information and an IP address, and GW identification information which shows nearby Gateway, and the subscriber's number assigned to the Gateway in the line switching network 115 were matched, respectively, and was beforehand registered about each terminal which can serve as an arrival-of-the-mail place of the call of the Internet telephone, as shown in drawing 5.

[0088] Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. Terminal 141-11 Then the LAN interface section 145-1 "the thing which the Internet 144 lapsed into the congestion condition" from a router 142-1 -- the identification information (it is hereafter called "arrival-of-the-mail place identification information".) of the terminal 141-21 which that is shown through LAN 143-1, and is an arrival-of-the-mail place (message partner) when things are notified IP address (it is hereafter called the "arrival-of-the-mail place address".) "An alternative circuit formation demand" to include is given to Gateway 112 (drawing 4 (1)).

[0089] Gateway 112 will be sent to a line switching network 115 by acquiring the subscriber's number

and GW information which were matched with the "arrival-of-the-mail place identification information" and the arrival-of-the-mail place IP address which are included in the "alternative circuit formation demand", and were registered into the User Information table 121, and setting up the subscriber's number as a number to be dialed, if such "an alternative circuit formation demand" is given ( drawing 4 (2)).

[0090] moreover, Gateway 114 -- a line switching network 115 to a certain call (here, since it is easy, Gateway 112 assumes that it is the call which is a sending agency.) -- receiving a message ( drawing 4 (3)) -- LAN 143-2 -- minding -- terminal 141-21 "A notice of alternative line identification" which shows that is given ( drawing 4 (4)). terminal 141-21 Terminal 141-11 which is a message partner at that time when this "notice of alternative line identification" is recognized \*\*\*\*\* -- identification information (henceforth "sending agency identification information") and an IP address (henceforth the "sending agency address") are preserved, and "an alternative circuit Acknowledgement" is sent out to Gateway 114 through LAN 143-2 ( drawing 4 (5)).

[0091] Gateway 114 will answer Gateway 112 which counters based on the signal system of a line switching network 115, if this "alternative circuit Acknowledgement" is recognized ( drawing 4 (6)). When it recognizes that did in this way and Gateway 114 answered based on the signal system of a line switching network 115, Gateway 112 minds LAN 143-1, and is a terminal 141-11. "A notice of the completion of alternative circuit formation" which shows that is given ( drawing 4 (7)).

[0092] Terminal 141-11 After recognizing the "notice of the completion of alternative circuit formation", it replaces with a router 142-1, and the digital signal (here, since it is easy, it is assumed that it is given as a train of an IP packet.) which shows the message signal which follows Gateway 112 and should be sent out to it by the arrival-of-the-mail place is sent out ( drawing 4 (8)). Gateway 112 sends out these digital signals to a line switching network 115 one by one through the built-in modem (not shown) ( drawing 4 (9)).

[0093] On the other hand, it restores through the modem (not shown) in which the digital signal which does in this way and is given through a line switching network 115 was built, and LAN 143-2 is minded, and Gateway 114 is a terminal 141-21. It gives ( drawing 4 (10)). . Terminal 141-21 If a digital signal is given from Gateway 114 through LAN 143-2 after sending out "an alternative circuit Acknowledgement", as mentioned above applying succeedingly the "sending agency identification information" and the "sending agency address" which were preserved by preceding -- following -- a terminal 141-11 -- the digital signal (here, since it is easy, it is assumed that it is given as a train of an IP packet.) which shows the message signal which should be sent out to addressing It generates and the digital signal is sent out to Gateway 114 through LAN 143-2 ( drawing 4 (11)). .

[0094] Gateway 114 -- a modem as stated above -- minding -- such [ a line switching network 115 ] a digital signal -- sequential delivery ( drawing 4 (12)) and Gateway 112 -- the digital signal -- one by one -- LAN 143-2 -- minding -- terminal 141-21 It gives ( drawing 4 (13)). . Thus, according to this operation gestalt, since a message signal can be succeedingly sent and received through the trunk line of the alternative to which a terminal 141-11, 141-21 is replaced with the Internet 144, and it is automatically formed in a line switching network 115, and transit delay time amount is not sharply changed according to congestion etc., compared with the conventional example in which the trunk line is formed only through the Internet 144, a speech quality is maintained highly.

[0095] Hereafter, the operation gestalt corresponding to invention according to claim 2 to 5 is explained. The difference of a configuration with this operation gestalt and the operation gestalt corresponding to invention given in claims 1, 16, and 17 As a dotted line shows to drawing 3 , it is a terminal 141-11. Combine and terminal 141-12-141-1M are held in LAN 143-1. Terminal 141-21 It combines, a 141-22 to 141 to 2 N terminal is held in LAN 143-2, and it is in the point with which the selection server 111 and the management server 113 which the User Information table 121 as stated above replaces with Gateway 112 and 114 were equipped, respectively.

[0096] Drawing 6 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 2 to 7. Hereafter, with reference to drawing 3 , drawing 5 , and drawing 6 , actuation of this operation gestalt corresponding to invention according to claim 2 to 5 is explained.



[0097] A terminal 141-11 is a terminal 141-21. When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. Terminal 141-11 Then the LAN interface section 145-1 "the thing which the Internet 144 lapsed into the congestion condition" from a router 142-1, if things are notified Terminal 141-21 which is an arrival-of-the-mail place (message partner) It combines with "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address." Terminal 141-11 which is a sending agency "An alternative circuit formation demand" including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 ( drawing 6 (1)).

[0098] Gateway 112 will give the "arrival-of-the-mail place identification information" contained in that "alternative circuit formation demand", and the "User Information demand" including the "arrival-of-the-mail place address" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized ( drawing 6 (2)). The selection server 111 gives "User Information" containing these subscriber's numbers and GW identification information to Gateway 112 through LAN 143-1 while acquiring the subscriber's number and GW identification information which were matched and were registered into the key by referring to the User Information table 121 as stated above by using as a key the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "User Information demand" ( drawing 6 (3)).

[0099] Gateway 112 will be sent to a line switching network 115 by setting up the subscriber's number contained in the "User Information" as a number to be dialed, if such "User Information" is given ( drawing 6 (4)). Moreover, Gateway 114 will answer based on the signal system which was adapted for the line switching network 115, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115 ( drawing 6 (5)).

[0100] If it recognizes that carried out Gateway 112 in this way, and Gateway 114 answered based on the signal system of a line switching network 115 The modem which changed into the bit string of predetermined format the "arrival-of-the-mail place identification information", the "arrival-of-the-mail place address", the "sending agency identification information", and the "sending agency address" which are included in "an alternative circuit formation demand" mentioned above, and was built in (it is not illustrated.) It minds and sends out to a line switching network 115 ( drawing 6 (6)).

[0101] The "arrival-of-the-mail place identification information", the "arrival-of-the-mail place address", the "sending agency identification information", and the "sending agency address" which were mentioned above are acquired by Gateway's 114 receiving such a bit string through a line switching network 115, and on the other hand, restoring through the built-in modem (not shown) ( drawing 6 (7)). Furthermore, Gateway 114 is a terminal (here) shown by this arrival-of-the-mail place identification information among 141-21 to 141 to 2 N terminals. since it is easy, it is assumed that it is shown by the sign "141-21." Combine with the "arrival-of-the-mail place identification information", and the "arrival-of-the-mail place address", "sending agency identification information", and the "sending agency address" are included. And "a notice of alternative circuit formation" which shows that the trunk line replaced with a line switching network 115 at the Internet was formed is given through LAN 143-2 ( drawing 6 (8)).

[0102] Terminal 141-21 Recognition of this "notice of alternative circuit formation" sends out "the alternative circuit Acknowledgement" containing the "sending agency identification information" contained in that "notice of alternative circuit formation" to Gateway 114 through LAN 143-2 ( drawing 6 (9)). Gateway 114 changes this "alternative circuit Acknowledgement" into a predetermined packet, and sends out that packet to a line switching network 115 through the built-in modem ( drawing 6 (10)).

[0103] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given ( drawing 6 (11)). The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to



addressing through LAN 143-1 ( drawing 6 (12)). .

[0104] It is sent out to a line switching network 115 by Gateway 112 like the bit mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given ( drawing 6 (13)). . Terminal 141-21 After sending out "the alternative circuit Acknowledgement" mentioned above By replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal, if such a digital signal is given by Gateway 114 The digital signal which shows the message signal which should be sent out to a sending agency while maintaining the transmission line of the message signal sent out from the sending agency (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 6 (14)). .

[0105] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 6 (15)). . Thus, since according to this operation gestalt the trunk line replaced with the trunk line currently formed in the Internet which lapsed into the congestion condition is automatically formed through a line switching network 115 even if it is the case where the terminal which is held in LAN 143-1, 143-2, respectively, and can serve as dispatch origin of the Internet telephone or an arrival-of-the-mail place is plurality, respectively, a speech quality is maintained highly.

[0106] Hereafter, with reference to drawing 3 , drawing 5 , and drawing 6 , actuation of this operation gestalt corresponding to invention of a publication is explained to claims 6 and 7. The difference between this operation gestalt and the operation gestalt corresponding to invention according to claim 2 to 5 has Gateway 114 in the procedure of processing of identifying "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address."

[0107] Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. Terminal 141-11 Then the LAN interface section 145-1 "the thing which the Internet 144 lapsed into the congestion condition" from a router 142-1, if things are notified "An alternative circuit formation demand" constituted without including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1, including "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" ( drawing 6 (1)).

[0108] Gateway 112 will give the "arrival-of-the-mail place identification information" contained in that "alternative circuit formation demand", and the "User Information demand" including the "arrival-of-the-mail place address" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized ( drawing 6 (2)). The selection server 111 gives "User Information" containing these subscriber's numbers and GW identification information to Gateway 112 through LAN 143-1 while acquiring the subscriber's number and GW identification information which were matched and were registered into the key by referring to the User Information table 121 as stated above by using as a key the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "User Information demand" ( drawing 6 (3)).

[0109] Gateway 112 will be sent to a line switching network 115 by setting up the subscriber's number contained in the "User Information" as a number to be dialed, if such "User Information" is given ( drawing 6 (4)). Moreover, Gateway 114 will answer based on the signal system which was adapted for the line switching network 115, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115 ( drawing 6 (5)).

[0110] If it recognizes that carried out Gateway 112 in this way, and Gateway 114 answered based on the signal system of a line switching network 115 The "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" ("sending agency identification information" and the "sending agency address" are not included.) which are included in "an alternative circuit formation demand" mentioned above The modem changed and built in the bit string of predetermined format (it is not illustrated.) It minds and sends out to a line switching network 115 ( drawing 6 (6)).

[0111] The "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which were mentioned above by Gateway's 114 receiving such a bit string through a line switching network 115, and on the other hand restoring through the built-in modem (not shown) are acquired ( drawing 6 (7)). Furthermore, Gateway 114 is a terminal (here) shown by this arrival-of-the-mail place identification information among 141-21 to 141 to 2 N terminals. since it is easy, it is assumed that it is shown by the sign "141-21." "A notice of alternative circuit formation" which shows that the trunk line replaced with a line switching network 115 at the Internet was formed through LAN 143-2, including the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" is given ( drawing 6 (8)).

[0112] Terminal 141-21 Terminal 141-11 which is a message partner at that time when this "notice of alternative circuit formation" is recognized "The alternative circuit Acknowledgement" containing the shown "sending agency identification information" is sent out to Gateway 114 through LAN 143-2 ( drawing 6 (9)). Gateway 114 changes this "alternative circuit Acknowledgement" into a predetermined packet, and sends it out to a line switching network 115 through the modem in which that packet was built ( drawing 6 (10)). .

[0113] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given ( drawing 6 (11)). The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to addressing through LAN 143-1 ( drawing 6 (12)). .

[0114] It is sent out to a line switching network 115 by Gateway 112 like the bit string mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given ( drawing 6 (13)). . Terminal 141-21 If such a digital signal is given by Gateway 114 after sending out "an alternative circuit Acknowledgement" While maintaining the transmission line of the message signal sent out from the sending agency by replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal The digital signal which shows the message signal which should be sent out to a sending agency (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 6 (14)). .

[0115] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 6 (15)). . That is, the trunk line replaced with the trunk line currently formed in the Internet which lapsed into the congestion condition is automatically formed in a line switching network 115, without transmitting "sending agency identification information" and the "sending agency address" to Gateway 114 from Gateway 112, even if it is the case where the terminal which is held in LAN 143-1, 143-2, respectively, and can serve as dispatch origin of the Internet telephone or an arrival-of-the-mail place is plurality, respectively.

[0116] Therefore, according to this operation gestalt, compared with the operation gestalt corresponding to invention according to claim 2 to 5, the trunk line replaced with the Internet 144 is efficiently formed through a line switching network 115, and deterioration of the speech quality according to congestion etc. is improved promptly. Drawing 7 is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 8 and 9.

[0117] Hereafter, with reference to drawing 3 and drawing 7 , actuation of this operation gestalt corresponding to invention of a publication is explained to claims 8 and 9. The subscriber's number (henceforth "a specific subscriber's number") of the line switching network 115 assigned to Gateway 114 in order to form the trunk line replaced with the Internet 144 with this operation gestalt, when the terminals of an arrival-of-the-mail place are any of 141-21 to 141 to 2 N is single, and known.

[0118] Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition. the LAN interface section 145-1 -- "the thing which the Internet 144 lapsed into the congestion condition"

from a router 142-1, if things are notified Terminal 141-21 "Arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" are included. And terminal 141-11 which is a sending agency "An alternative circuit formation demand" constituted including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 (drawing 7 (1)).

[0119] Gateway 112 is sent to a line switching network 115 by setting up a specific subscriber's number as stated above as a number to be dialed, without giving "the User Information demand" in any way to the selection server 111, if this "alternative circuit formation demand" is recognized (drawing 7 (2)). Moreover, Gateway 114 will answer based on the signal system which was adapted for the line switching network 115, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115 (drawing 7 (3)).

[0120] Gateway 112 changes into the bit string of predetermined format the "sending agency identification information" and the "sending agency address" which are included in "an alternative circuit formation demand" which mentioned it above when it had recognized that did in this way and Gateway 114 answered based on the signal system of a line switching network 115, and sends them out to a line switching network 115 through the built-in modem (not shown) (drawing 7 (4)).

[0121] On the other hand, Gateway 114 acquires the "sending agency identification information" and the "sending agency address" which were mentioned above by receiving such a bit string through a line switching network 115 (drawing 7 (5)), and restoring through the built-in modem (not shown). Furthermore, Gateway 114 minds LAN 143-2, and is a 141-21 to 141 to 2 N terminal. The "end inquiries of an arrival-of-the-mail tip" including the "sending agency identification information" and the "sending agency address" is sent out all at once (drawing 7 (6)). 141-21 to 141 to 2 N terminal In the talk state of the Internet telephone Hold the "sending agency identification information" and the "sending agency address" which show the terminal of a sending agency as known information, and if the "end inquiry of an arrival-of-the-mail tip" mentioned above is recognized It distinguishes whether the "sending agency identification information" and the "sending agency address" which are included in the "end inquiry of an arrival-of-the-mail tip" correspond to such known information (drawing 7 (7)).

[0122] The terminal which has recognized that the result of the distinction is truth among 141-21 to 141 to 2 N terminals (here) since it is easy, it is assumed that it is shown by the sign "141-21." While giving "an inquiry response" which shows that to Gateway 114 through LAN 143-2, including the "receiving a message agency identification information" and the "receiving a message agency address" which show the terminal It recognizes that the trunk line replaced with a line switching network 115 at the Internet was formed (drawing 7 (8)).

[0123] If this "inquiry response" is recognized, Gateway 114 is combined with the "arrival-of-the-mail place identification information", and the "arrival-of-the-mail place address" which are included in that "inquiry response", changes "an alternative circuit Acknowledgement" including "sending agency identification information", and the "sending agency address" as stated above into a predetermined packet, and sends it out to a line switching network 115 through the modem in which that packet was built (drawing 7 (9)).

[0124] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given (drawing 7 (10)). The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to addressing through LAN 143-1 (drawing 7 (11)).

[0125] It is sent out to a line switching network 115 by Gateway 112 like the bit string mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given (drawing 7 (12)). Terminal 141-21 If the digital signal mentioned above by Gateway 114 is given after sending out "an inquiry response" as stated above While maintaining the transmission line of the message signal sent out from the sending agency by replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal The digital signal which shows the message signal which should be sent out to a sending agency (here, since it is easy, it is

assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 7 (13)).

[0126] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 7 (14)). That is, the trunk line replaced with the Internet which lapsed into the congestion condition is automatically formed through a line switching network, without transmitting "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" to Gateway 114 from Gateway 112, even if it is the case where two or more terminals held in LAN 143-2 can serve as an arrival-of-the-mail place of the Internet telephone.

[0127] Therefore, according to this operation gestalt, compared with the operation gestalt corresponding to invention according to claim 2 to 5, the trunk line replaced with the Internet 144 is efficiently formed in a line switching network 115, and deterioration of the speech quality according to congestion etc. is improved promptly. Drawing 8 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 10 to 12.

[0128] Hereafter, with reference to drawing 3 , drawing 5 , and drawing 8 , actuation of this operation gestalt corresponding to invention according to claim 10 to 12 is explained. With this operation gestalt, ISDN which has a notice function of an addresser number is applied as a line switching network 115. Terminal 141-11 Terminal 141-21 When it sends to addressing and a router 142-1 supervises the traffic volume of the Internet 144 in the condition that the channel is formed by using the Internet 144 a trunk line among both, it distinguishes whether the trunk line lapsed into the congestion condition.

[0129] Terminal 141-11 Then the LAN interface section 145-1 If "the Internet 144 lapsed into the congestion condition" is notified from a router 142-1 Terminal 141-21 which is an arrival-of-the-mail place It combines with "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address." Terminal 141-11 which is a sending agency "An alternative circuit formation demand" including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 ( drawing 8 (1)).

[0130] Gateway 112 will give "a sending-and-receiving User Information demand" including the "arrival-of-the-mail place identification information", the "arrival-of-the-mail place address", the "sending agency identification information", and the "sending agency address" which are included in that "alternative circuit formation demand" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized ( drawing 8 (2)). The selection server 111 acquires the subscriber's number (henceforth "the first subscriber's number") and GW identification information which were matched and were registered into the first key by referring to the User Information table 121 of the previous statement of the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "sending-and-receiving User Information demand" as the first key. Moreover, the selection server 111 acquires the subscriber's number (henceforth "the second subscriber's number") which was matched and was registered into the second key by referring to the User Information table 121 of the previous statement of the "sending agency identification information" and the "sending agency address" which are included in "a sending-and-receiving User Information demand" as the second key. Furthermore, the selection server 111 gives "sending-and-receiving User Information" containing these the "first subscriber's number", GW identification information, and the "second subscriber's number" to Gateway 112 through LAN 143-1 ( drawing 8 (3)).

[0131] Gateway 112 will be sent to a line switching network 115 by setting up the "first subscriber's number" contained in the "sending-and-receiving User Information" as a number to be dialed, and setting up "the second subscriber's number" as an addresser number, if such "sending-and-receiving User Information" is given ( drawing 8 (4)). Moreover, if a certain call (here, Gateway 112 assumes that it is the call which is a sending agency since it is easy.) receives a message from a line switching network 115, Gateway 114 will acquire the addresser number mentioned above based on the signal system which was adapted for the line switching network 115, and will answer ( drawing 8 (5)).

[0132] It is sent out to a line switching network 115, Gateway 112 changing into the bit string of

predetermined format the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in "an alternative circuit formation demand" which mentioned it above when it had recognized that did in this way and Gateway 114 answered based on the signal system of a line switching network 115 ( drawing 8 (6)). On the other hand, Gateway 114 acquires the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which were mentioned above by receiving such a bit string and restoring through a line switching network 115 ( drawing 8 (7)).

[0133] Furthermore, Gateway 114 is a terminal (here) shown by this arrival-of-the-mail place identification information among 141-21 to 141 to 2 N terminals. since it is easy, it is assumed that it is shown by the sign "141-21." Through LAN 143-2, it combines with the "arrival-of-the-mail place identification information", and "a notice of alternative circuit formation" which shows that the trunk line replaced with the trunk line currently formed in the Internet was formed in the line switching network 115, including the "arrival-of-the-mail place address" is given ( drawing 8 (8)).

[0134] Terminal 141-21 Terminal 141-11 which is a sending agency when this "notice of alternative circuit formation" is recognized "The alternative circuit Acknowledgement" containing the shown "sending agency identification information" is sent out to Gateway 114 through LAN 143-2 ( drawing 8 (9)). Gateway 114 changes this "alternative circuit Acknowledgement" into a predetermined packet, and sends it out to a line switching network 115 through the modem in which that packet was built ( drawing 8 (10)). .

[0135] Gateway 112 -- LAN 143-1 -- minding -- terminal 141-11 The packet is given ( drawing 8 (11)). The terminal 141-11 The digital signal which shows the message signal which follows and should be sent out to an arrival-of-the-mail place after recognizing this packet (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 112 (a router 142-1 is replaced.) It sends out to addressing through LAN 143-1 ( drawing 8 (12)). .

[0136] It is sent out to a line switching network 115 by Gateway 112 like the bit string mentioned above, and LAN 143-2 is minded by Gateway 114, and these digital signals are terminals 141-21. It is given ( drawing 8 (13)). . Terminal 141-21 If such a digital signal is given by Gateway 114 after sending out "an alternative circuit Acknowledgement" While maintaining the transmission line of the message signal sent out from the sending agency by replacing with the IP packet to which the digital signal was given from the router 142-2, and processing as a message signal The digital signal which shows the message signal which should be sent out to a sending agency (here, since it is easy, it is assumed that it is given as a train of an IP packet.) Gateway 114 (a router 142-2 is replaced.) It sends out to addressing through LAN 143-2 ( drawing 8 (14)). .

[0137] It is sent out to a line switching network 115 by Gateway 114 like "the alternative circuit Acknowledgement" mentioned above, and LAN 143-1 is minded by Gateway 112, and such a digital signal is a terminal 141-11. It is given ( drawing 8 (15)). . That is, even if it is the case where two or more terminals held in LAN 143-2 can serve as an arrival-of-the-mail place of the Internet telephone, the trunk line replaced with the Internet which lapsed into the congestion condition is automatically formed in a line switching network by not transmitting "sending agency identification information" and the "sending agency address" to Gateway 114 from Gateway 112, and utilizing the notice function of an addresser number of a proper for a line switching network 115.

[0138] Therefore, according to this operation gestalt, compared with the operation gestalt corresponding to invention according to claim 2 to 5, the trunk line replaced with the Internet 144 is efficiently formed in a line switching network 115, and deterioration of the speech quality according to congestion etc. is improved promptly. In addition, although "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" are transmitted to Gateway 114 from Gateway 112 with this operation gestalt For example, it is the terminal 141-21 of an arrival-of-the-mail place at the process of the call setup of the Internet telephone. It combines with an addresser number. Since the junction way which can obtain addresser identification information and the addresser address, and is replaced with the Internet 144 is formed, when the subscriber's number of the line switching network 115 assigned to Gateway 114 is single These "arrival-of-the-mail place identification information" and the "arrival-of-

the-mail place addresses" do not need to be transmitted to claims 8 and 9 like the operation gestalt corresponding to invention of a publication at Gateway 114.

[0139] Moreover, at each operation gestalt mentioned above, it is the terminal 141-11 of a sending agency. Terminal 141-21 of an arrival-of-the-mail place After the trunk line replaced with the Internet 144 is formed in a line switching network 115, the sending-out place of the message signal which should be sent out according to an individual is changed to Gateway 112 and addressing to 114 leading, respectively. However, while Gateway 114 and a router 142-2 have the same address to LAN 143-2 and Gateway 112 and a router 142-1 have the same address to LAN 143-1 for example, the same change may be performed when such Gateway 112 and 114 regulates actuation of a router 142-1, 142-2, respectively.

[0140] Furthermore, although the trunk line which the Internet 144 replaces with a line switching network 115 at the Internet 144 with the event as the starting point which lapsed into the congestion condition is formed with each operation gestalt mentioned above For example, the same origin may be obtained by what "a speech quality is authorized based on the criteria (for example, result of the signal judging about the known pilot signal on which the message signal was overlapped) the terminal 141-11 was beforehand decided to be, and the speech quality recognizes for that it was less than the predetermined threshold."

[0141] Hereafter, this operation gestalt corresponding to invention according to claim 13 to 15 is explained. The trunk line formed in a line switching network 115 is not formed to the completed call of the Internet telephone, and the difference between this operation gestalt and the operation gestalt corresponding to invention according to claim 1 to 12 is in the point which is the trunk line of the alternative with which improvement in the rate of a completed call is presented.

[0142] In addition, about a line switching network 115, since it is easy, it is assumed that it is the telephone network of an analog here. Drawing 9 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 13 to 15. Hereafter, actuation of this operation gestalt is explained with reference to drawing 3, drawing 5, and drawing 9.

[0143] Terminal 141-11 Terminal 141-21 If it sends to addressing, the originating call which corresponds based on the procedure of a call setup will distinguish whether they are a completed call and \*\*\*\*. Furthermore, the LAN interface section 145-1 If it identifies that the originating call turned into an incompleting call according to a certain cause Terminal 141-21 which is an arrival-of-the-mail place It combines with "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address." Terminal 141-11 which is a sending agency "An alternative circuit formation demand" including "sending agency identification information" and the "sending agency address" is given to Gateway 112 through LAN 143-1 (drawing 9 (1)).

[0144] Gateway 112 will give the "arrival-of-the-mail place identification information" contained in that "alternative circuit formation demand", and the "User Information demand" including the "arrival-of-the-mail place address" to the selection server 111 through LAN 143-1, if this "alternative circuit formation demand" is recognized (drawing 9 (2)).

[0145] The selection server 111 gives "User Information" containing these subscriber's numbers and GW identification information to Gateway 112 through LAN 143-1 while acquiring the subscriber's number and GW identification information which were matched and were registered into the key by referring to the User Information table 121 as stated above by using as a key the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" which are included in the "User Information demand" (drawing 9 (3)).

[0146] Gateway 112 is sent to a line switching network 115 by setting up the subscriber's number contained in the "User Information" as a number to be dialed (drawing 9 (4)). Gateway 112 and 114 and a terminal 141-11, and 141-21 hereafter By that (drawing 9 (5) - (15)) which is coordinated like the operation gestalt corresponding to invention [ as stated above ] according to claim 2 to 5 Terminal 141-11 By using a line switching network 115 automatically as a trunk line replaced with the Internet 144 Terminal 141-21 which is a desired arrival-of-the-mail place through LAN 143-1, Gateway 112, a line switching network 115, Gateway 114, and LAN 143-2 In between, a channel is secured.



[0147] Therefore, also when the Internet 144 lapses into a congestion condition and the condition that it cannot use as a trunk line of the Internet telephone of a failure and others according to this operation gestalt, the terminal held in LAN 143-1, 143-2 can be certainly re-sent to the line switching network 115 which replaces the Internet 144 through the trunk line formed automatically.

[0148] In addition, although re-dispatch is performed automatically and the line switching network 115 is once applied as a trunk line with this operation gestalt when the originating call of the Internet telephone turns into an incompleting call. For example, the attribute of the arrival-of-the-mail class and others of the origination class of the terminal of a sending agency, or the terminal of an arrival-of-the-mail place. It is possible for it to be also flexibly adapted for the demand of various services by choosing either of the Internet and a line switching network as a trunk line, or being given priority and applied according to (for example, "the attribute which requires a high quality message").

[0149] Hereafter, the operation gestalt corresponding to invention according to claim 18 is explained. Drawing 10 is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 18. For the difference of a configuration with this operation gestalt and the operation gestalt corresponding to invention according to claim 1 to 17, as shown in drawing 3, terminal 141a-11-141a-1M are terminal 141-11 -141-1M. The telephone 116 which replaced with, and it had and was connected to the line switching network 115 is a terminal 141-21. It is in the point arranged at the installation neighborhood of a point.

[0150] In addition, terminal 141a-11 Terminal 141-11 The difference of a configuration is in the point of having the circuit interface section 117-1 connected to the line switching network 115 through the subscriber line, as a dotted line shows to drawing 3. Moreover, about the configuration of terminal 141a-12-141a-1M, it is terminal 141a-11. Since it is the same as a configuration, the explanation and illustration are omitted here.

[0151] Hereafter, actuation of this operation gestalt is explained with reference to drawing 3, drawing 5, and drawing 10. As half tone dot meshing is attached and shown in drawing 5, about each terminal, the selection server 111 combines with identification information, an IP address, and a subscriber's number, replaces with the User Information table 121 User Information table 121a into which the "juxtaposition terminal subscriber's number" which shows the number of the telephone put side by side like the telephone 116 as stated above was registered, and has it.

[0152] Moreover, by carrying out the monitor of the stream signal for a monitor transmitted through the first pass of OSI about LAN 143-2, the management server 113 distinguishes whether it lapsed into the congestion condition (for example, condition in which the rate of time amount occupied by the packet exceeded 60%), and notifies the result of the distinction to a router 142-2 serially (drawing 10 (1)).

[0153] Terminal 141a-11 Terminal 141-21 In the condition that send to addressing (drawing 10 (2)), and the Internet 144 is applied as a trunk line, a router 142-2 is the result of the distinction mentioned above through the Internet 144, the router 142-1, and LAN 143-1 Terminal 141a-11 It notifies (drawing 10 (3)).

[0154] Terminal 141a-11 If what "LAN 143-2 lapsed into the congestion condition" based on the result notified by doing in this way is recognized before the originating call of the corresponding Internet telephone turns into a completed call The "User Information demand" which is interrupted based on the procedure in which it was able to opt for the call setup of the originating call beforehand (drawing 10 (4)), and includes "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address" is given to the selection server 111 through LAN 143-1 (drawing 10 (5)).

[0155] "User Information" which the selection server 111 acquires the "juxtaposition terminal subscriber's number" registered into User Information table 121a corresponding to the combination of the "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address", and contains the "juxtaposition terminal subscriber's number" -- LAN 143-1 -- minding -- terminal 141a-11 It gives (drawing 10 (6)). terminal 141a-11 \*\*\*\* -- the circuit interface section 117-1 is sent to a line switching network 115 by setting up the "juxtaposition terminal subscriber's number" contained in the "User Information" as a number to be dialed (drawing 10 (7)).

[0156] occurrence of such [ telephone 116 ] an originating call -- responding -- singing -- carrying out



( drawing 10 (8)) -- and an operator -- an off-hook condition -- becoming ( drawing 10 (9)) -- the circuit interface section 117-1 recognizes that based on the signal system of a line switching network 115 ( drawing 10 (10)) And about the message signal sent and received through the telephone set section 146-1, the interface based on the signal system is taken ( drawing 10 (11), (12)).

[0157] Namely, terminal 141-21 which is held in the LAN 143-2, and should serve as an arrival-of-the-mail place even if it is in the condition that LAN 143-2 has lapsed into the congestion condition Since dispatch which receives the telephone 116 put side by side is performed automatically, the whereabouts is a terminal 141-21. Means of communications is secured among message partners with clear it being the circumference. Hereafter, the operation gestalt corresponding to invention of a publication is explained to claims 19 and 20.

[0158] Drawing 11 is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 19 and 20. Hereafter, actuation of drawing 3, drawing 5, and this operation gestalt corresponding to invention given in drawing 11 is explained. 141-21 to 141 to 2 N terminal held in LAN 143-2 as the management server 113 was combined with the User Information table 121 (121a) shown in drawing 5 and it was shown in drawing 12 \*\*\*\*\* -- the "destination identification information" which shows the destination of an incoming call has the transfer control table 131 registered according to the individual.

[0159] terminal 141-21 \*\*\*\* -- the case where an operator moves to the location in which other terminals (for example, terminal 141-1M held in LAN 143-1) were installed -- the identification information (henceforth "destination identification information") of the terminal 141-1M, and terminal 141-21 It specifies through the control unit which does not have identification information (henceforth "source information") illustrated. Terminal 141-21 "A transfer registration demand" containing the "destination identification information" specified by doing in this way and "source identification information" is given to the management server 113 through LAN 143-2 ( drawing 11 (1)). And binary information shown [ "whether does it follow and the occurring incoming call should be transmitted" and ] (here, since it is easy, it is assumed that it is held at a terminal 141-21.) A logical value is set as "1" and it stands by.

[0160] The management server 113 registers the "destination identification information" given to the record corresponding to the "source identification information" contained in "a transfer registration demand" mentioned above among the records which constitute the transfer control table 131 with this "source identification information." moreover, terminal 141-21 the operation gestalt corresponding to invention given in any of claims 1-18 they are -- the same -- carrying out -- a certain incoming call (any of the Internet 144 and a line switching network 115 may be applied as a trunk line.) -- receiving a message ( drawing 11 (2)) -- Although it distinguishes whether the logical value of the binary information mentioned above is "1", and the corresponding incoming call is received when the result of the distinction is "0" When it is "1" on the contrary, it is a terminal 141-21. The "transfer request" containing identification information is given to the management server 113 through LAN 143-2 ( drawing 11 (3)).

[0161] The management server 113 obtains the IP address included in that record, a subscriber's number, GW identification information, and a juxtaposition terminal subscriber's number while specifying the record with which the "destination identification information" registered into the transfer control table 131 corresponding to the identification information contained in that "transfer request" is acquired, and this "destination identification information" is contained as identification information among the records of the User Information table 121 (121a).

[0162] Furthermore, the management server 113 applies suitably the IP address obtained by doing in this way, a subscriber's number, GW identification information, and a juxtaposition terminal subscriber's number as the "arrival-of-the-mail address" etc., respectively, and transmits the corresponding incoming call by what dispatch to the Internet 144 or the subscriber line switched network 115 is performed for ( drawing 11 (4)) like the operation gestalt corresponding to invention given in any of claim 1 - claim 18 they are.

[0163] namely, the channel which results in a message partner's destination since dispatch to the

terminal put side by side to the terminal of the destination is ensured when LAN in which the trunk line replaced with the Internet 144 which lapsed into the congestion condition was formed in through the line switching network 115, and the terminal of the destination was held has lapsed into the congestion condition, even if it is a forwarded call -- accuracy -- it is formed highly.

[0164] In addition, at this operation gestalt, it is the terminal 141-21 of an arrival-of-the-mail place. Although transfer processing is performed by the nearby management server 113 For example, a nearby management server and a nearby selection server have the transfer control User Information table 131 and 121 (121a) as stated above to the terminal of a sending agency. And while performing processing as stated above according to "a transfer registration demand" given through the Internet 144 or a line switching network 115 The "sending agency identification information", the "sending agency address" which are given with the terminal of a sending agency, According to "arrival-of-the-mail place identification information" and the "arrival-of-the-mail place address", same transfer processing may be realized by referring to these transfer control tables 131 and User Information tables 121 (121a) as stated above.

[0165] Moreover, at this operation gestalt, it is the terminal 141-21 of an arrival-of-the-mail place. Although the necessity of transfer processing is distinguished by distinguishing the logical value of the binary information on as stated above, for example, the time zone and schedule on which the transfer processing should be performed may be registered into the transfer control table 131, and the necessity and the destination of transfer processing may be set up based on the time zone and schedule.

[0166] Furthermore, although "sending agency identification information", the "sending agency address", "arrival-of-the-mail place identification information", and the "arrival-of-the-mail place address" are transmitted to Gateway 114 by Gateway 112 through the line switching network 115 with each operation gestalt mentioned above for example, in being small to the degree with which the transit delay time amount of the Internet 144 from a sending agency to an arrival-of-the-mail place is permitted All such "sending agency identification information", the "sending agency addresses", the "arrival-of-the-mail place identification information", and "arrival-of-the-mail place addresses" may be transmitted through the Internet 144. [ all / some or ]

[0167] Moreover, with each operation gestalt mentioned above, although the detection method of LAN 143-1 and the congestion condition of the Internet 144 is not described by details, if it is well-known and adapted for the transmission system and communication procedure which were applied to these LANs 143-1 and the Internet 144, what kind of technology may be applied about the technology of detecting such a congestion condition.

[0168] Furthermore, although the process in which the contents of the User Information table 121 (121a) are set up or updated is not explained at all by each operation gestalt mentioned above, about such contents, the man machine interface which is initialized as system configuration information or office information at the time of starting of a system, or enables updating according to directions of the person in charge in connection with employment or maintenance may be taken.

[0169] Moreover, although the pass formed in the Internet 144 is not canceled at all with each operation gestalt mentioned above, for example, when the Internet 144 lapses into a congestion condition, it may be canceled, or may be again used as a trunk line according to recovery of the congestion condition.

[0170] Furthermore, when the pass which did in this way and was formed in the Internet 144 is used again, by opening wide the trunk line of the alternative formed in the line switching network 115, the resource of the line switching network 115 may be used effectively, and reduction of cost may be aimed at. Moreover, although the signal system applied to the line switching network 115 is not explained in full detail and Gateway 112 and 114 is connected to the line switching network 115 through the subscriber line with each operation gestalt mentioned above, such Gateway 112 and 114 may be connected to a line switching network 115 based on the signal system (any of an analog form and a digital method are sufficient.) which should be applied for example, between stations.

[0171] Furthermore, with each operation gestalt mentioned above, although the message signal is transmitted through the line switching network 115 as "a digital signal which shows the train of an IP packet", such a message signal may be changed and transmitted to the sign (PCM signal (the signal

which shows the sign train generated based on AD-PCM system and the delta modulation system is included.)) of predetermined format, or an analog signal.

[0172] Moreover, although the trunk line replaced with the trunk line formed in the Internet is formed in the line switching network 115 with each operation gestalt mentioned above, if message switching is carried out to the unit of a packet or a cel, this invention can be applied also like the network of intranet and others, for example, and may be constituted only from the single node instead of a distributed process input output equipment switched network like the Internet or intranet by such network.

[0173] Furthermore, functional distribution is measured with each operation gestalt mentioned above by the selection server 111 and Gateway 112 which were connected to LAN 143-1. Or although the trunk line is formed in the line switching network 115 which replaces the Internet 144 when functional distribution is measured by the management server 113 and Gateway 114 which were held in LAN 143-2 This invention may be mounted in the single personal computer which is not held in LAN at all, for example, and may be constituted as single equipment possessing the same function as these selection servers 111, Gateway 112 and 114, and the management server 113.

[0174] Moreover, about such equipment, when to operate only as the dispatch origin of the Internet telephone or an arrival-of-the-mail place is demanded for example, you may have a configuration equivalent to the combination of the selection server 111 and Gateway 112, or the combination of the management server 113 and Gateway 114.

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[Translation done.]

**\* NOTICES \***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

## DESCRIPTION OF DRAWINGS

### [Brief Description of the Drawings]

[Drawing 1] They are claims 1-12 and the principle block diagram of invention given in 16-20.

[Drawing 2] It is the principle block diagram of invention according to claim 13 to 20.

[Drawing 3] It is drawing showing the operation gestalt corresponding to invention according to claim 1 to 20.

[Drawing 4] It is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 1, 16, and 17.

[Drawing 5] It is drawing showing the configuration of the User Information table.

[Drawing 6] It is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 2 to 7.

[Drawing 7] It is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 8 and 9.

[Drawing 8] It is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 10 to 12.

[Drawing 9] It is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 13 to 15.

[Drawing 10] It is drawing explaining actuation of this operation gestalt corresponding to invention according to claim 18.

[Drawing 11] It is drawing which explains actuation of this operation gestalt corresponding to invention of a publication to claims 19 and 20.

[Drawing 12] It is drawing showing the configuration of a transfer control table.

[Drawing 13] It is drawing showing the terminal which uses the Internet telephone through LAN.

### [Description of Notations]

11, 21, 31 Event detection means

12, 22, 22a, 32 Storage means

13, 23, and 23a- 23j and 33 Alternative circuit prehension means

14, 24, and 24a- 24j and 34 Alternative circuit means forming

15, 25, and 25a- 25j and 35 Alternative circuit formation distinction means

16, 26, and 26a- 26j and 37 Circuit change means

61 71 Destination storage means

72 Transfer Means

36 Re-Dispatch Means

41 Sending Agency Attribute Storage Means

42 Sending Agency Attribute Distinction Means

51 Arrival-of-the-Mail Place Attribute Storage Means

52 Arrival-of-the-Mail Place Attribute Distinction Means

111 Selection Server

112, 114 Gateway

113 Management Server  
115 Line Switching Network  
116 Telephone  
117 Circuit Interface Section  
121,121a User Information table  
131 Transfer Control Table  
141,141a Terminal  
142 Router  
143 LAN  
144 Internet  
145 LAN Interface Section  
146 Telephone Set Section

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[Translation done.]

## \* NOTICES \*

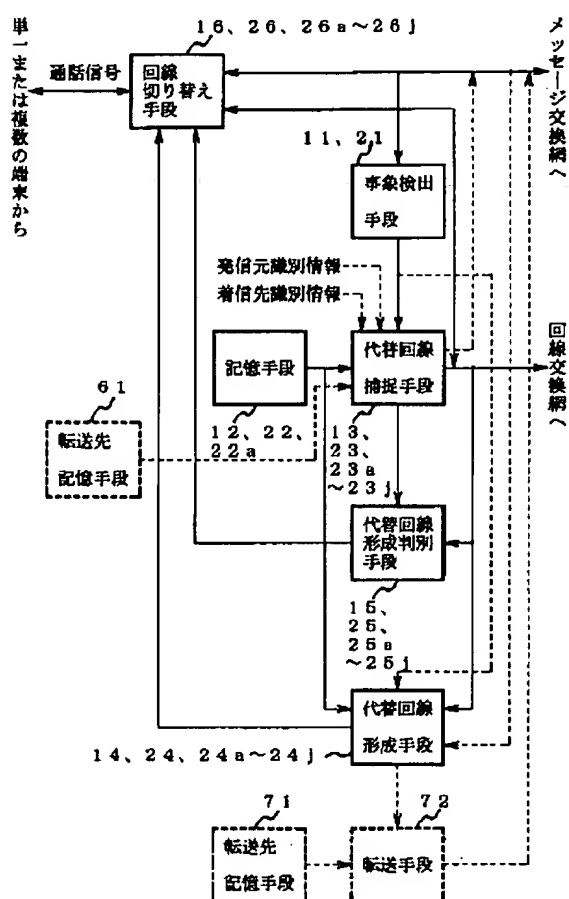
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2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

## DRAWINGS

[Drawing 1]

請求項1～12、16～20に記載の発明の原理ブロック図



[Drawing 5]



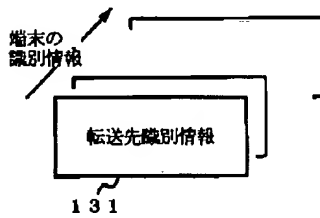
ユーザ情報テーブルの構成を示す図

識別情報	IPアドレス	加入者番号	GW識別情報	併設端末 加入者番号
⋮	⋮	⋮	⋮	⋮

121, 121a

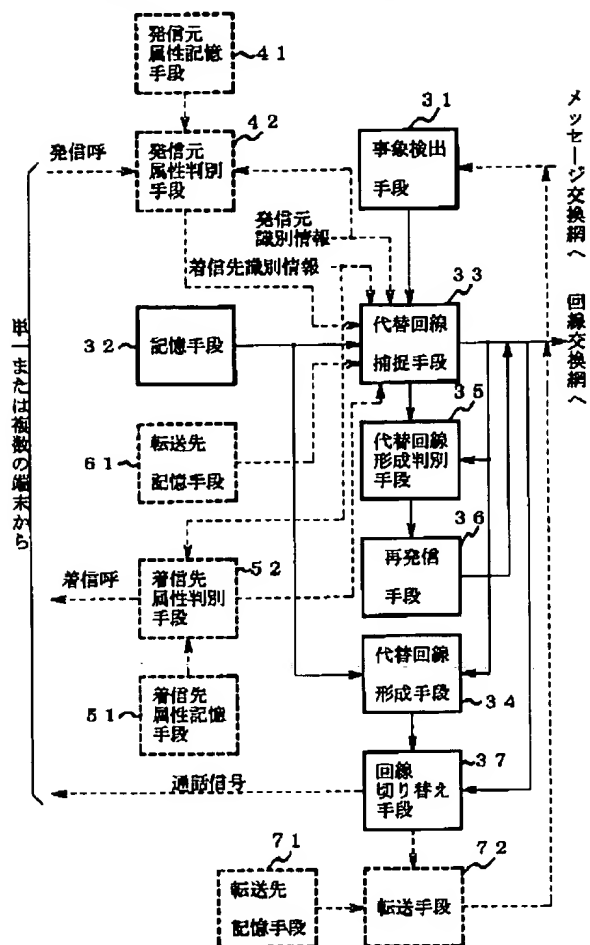
[Drawing 12]

転送制御テーブルの構成を示す図



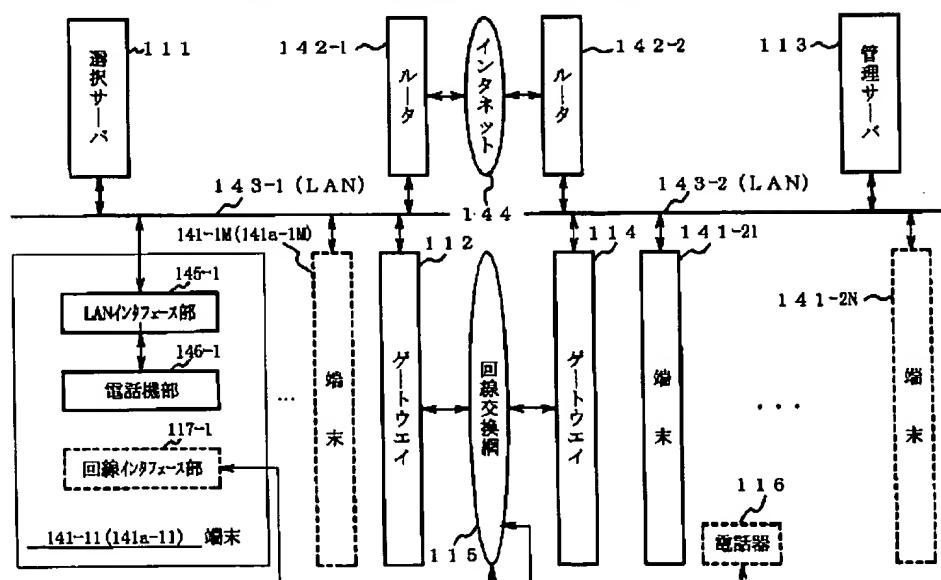
[Drawing 2]

請求項13～20に記載の発明の原理ブロック図



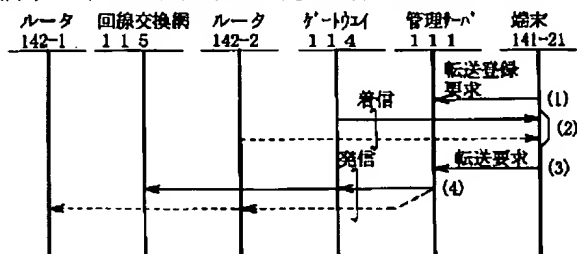
[Drawing 3]

請求項1～20に記載の発明に対応した実施形態を示す図



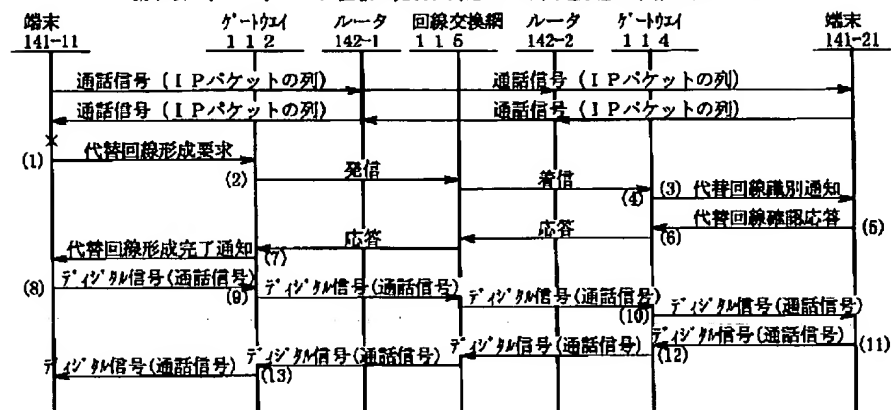
[Drawing 11]

請求項 19、20 に記載の発明に対応した本実施形態の動作を説明する図



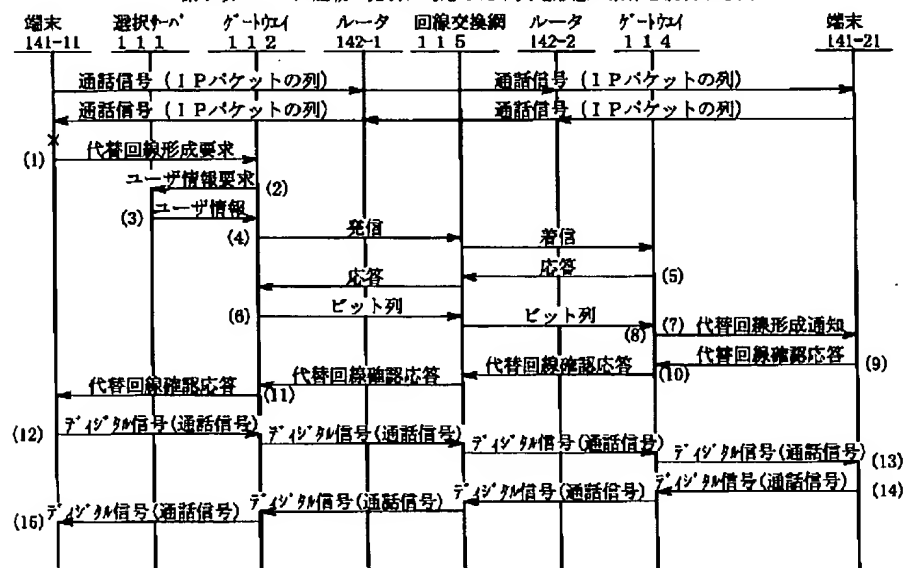
[Drawing 4]

請求項 1、16、17 に記載の発明に対応した本実施形態の動作を説明する図



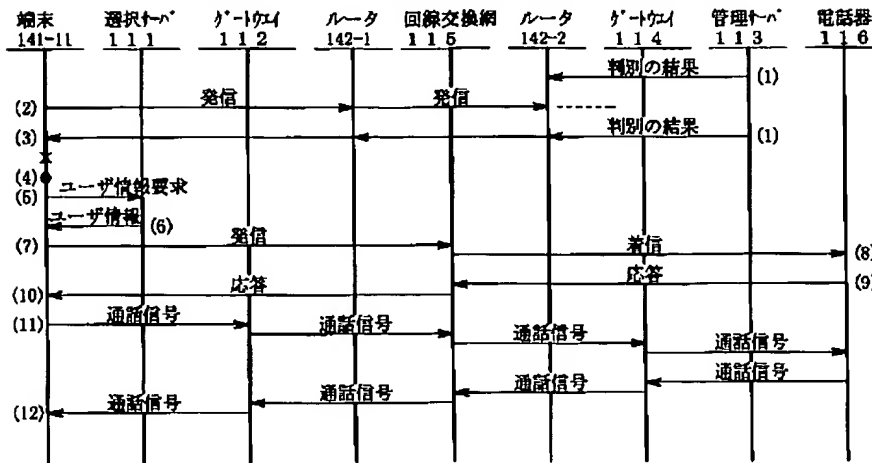
[Drawing 6]

請求項 2～7 に記載の発明に対応した本実施形態の動作を説明する図



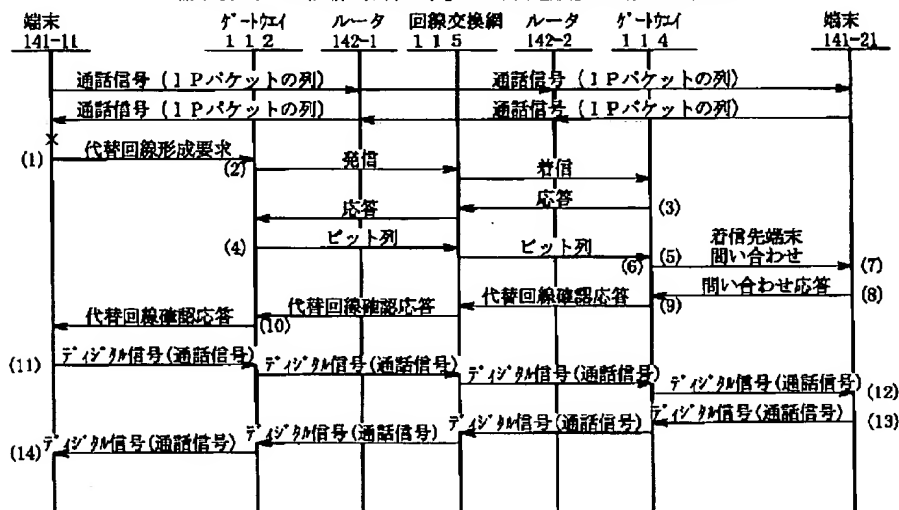
[Drawing 10]

請求項 18 に記載の発明に対応した本実施形態の動作を説明する図



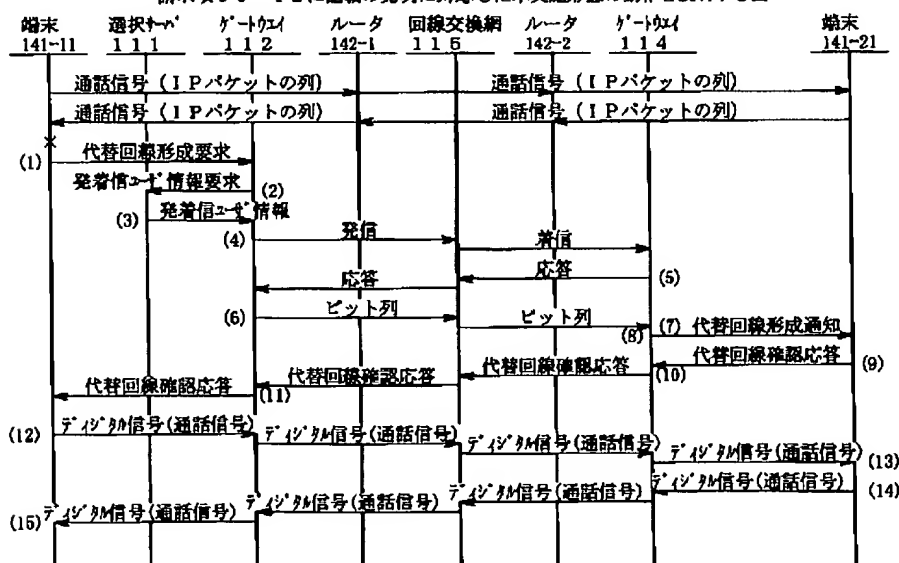
[Drawing 7]

請求項 8、9 に記載の発明に対応した本実施形態の動作を説明する図



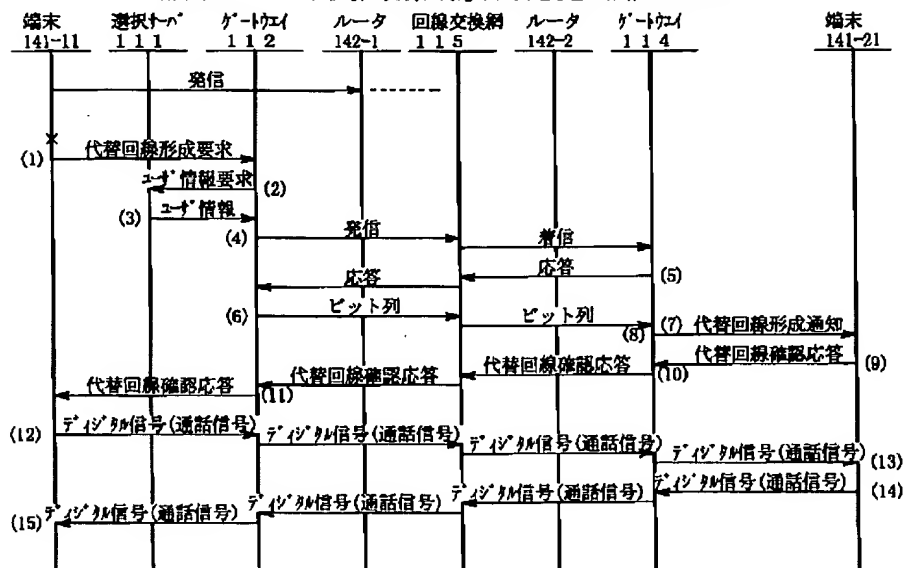
[Drawing 8]

請求項 10～12 に記載の発明に対応した本実施形態の動作を説明する図



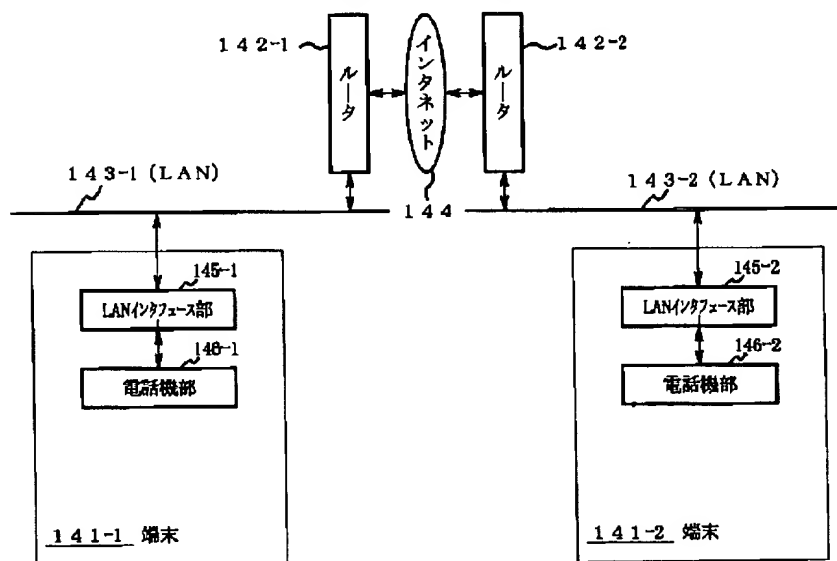
[Drawing 9]

請求項 13～15 に記載の発明に対応した実施形態の動作を説明する図



[Drawing 13]

LANを介してインターネット電話を利用する端末を示す図



[Translation done.]